

'It's Important to Know In Time'

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The Newspaper of the Industry

## Carrier Ties Up With New Lines For Its Dealers

'Executone' and 'Dorex' Lines To Be Sold By Field Organization

SYRACUSE, N. Y.—Announcement of a new distributive system bringing two additional products to Carrier dealers and salesmen to help them survive the war period was announced June 1 by E. T. Murphy, marketing vice president of Carrier Corp.

Under the arrangement developed from the emergency but being tested as a permanent attack on selling costs, Carrier's distribution organization will be used to merchandise the Executone inter-office communication system, and Dorex air recovery equipment of the W. B. Connor Engineering Corp.

In announcing the new set up, Mr. Murphy pointed out that Carrier is running almost 100% to war production. However, even though most of this output comprises types of products normally manufactured by the company in peace time, its dealers are facing the same hardships as are most small business men.

The distributive plan has broad implications not only from the immediate standpoint of Carrier, Executone, and Dorex, but of other manufacturers in that the joint distribution plan may help solve the post-war marketing problems of smaller manufacturers generally, state Carrier officials.

The program was developed by J. M. Bickel, manager of Carrier's dealer relations; Hugh T. Porter, general manager of sales of Dorex; and N. A. Karr, general manager of Executone.

Mr. Murphy stated that Carrier expects to enter into one or two similar arrangements with other companies to help dealers maintain themselves through the war and to test out as widely as possible the program for reducing sales overhead of many companies.

Executone, said to be the oldest device of its kind in the field, is being used increasingly in war factories.

(Concluded on Page 16, Column 3)

## Calumet & Hecla Buys Wolverine Tube Co.

DETROIT—A. E. Petermann, president of the Calumet & Hecla Consolidated Copper Co., on June 3 announced the purchase of the entire assets and liabilities of the Wolverine Tube Co. in Detroit.

This followed a proposal made by Calumet & Hecla to the stockholders of Wolverine Tube which was approved by them on April 28, 1942.

Operations will continue at the plant and offices as the Wolverine Tube division of Calumet & Hecla Consolidated Copper Co. with production for the war effort uninterrupted. Otto Z. Klipsch will serve as general manager of the Wolverine Tube division.

## Midwest Jobbers Plan Meeting June 22

DES MOINES, Iowa—Plans are being completed for a Midwest Refrigeration Supply Jobbers' meeting to start at 11 a.m. June 22, at Hotel Ft. Des Moines here.

A luncheon will be given at noon. All manufacturers' representatives are invited to attend the session, says E. L. Bengston, manager of the refrigeration department, Republic Electric Co., Davenport.

(Concluded on Page 16, Column 2)

# Air Conditioning & REFRIGERATION

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## Los Angeles Apartment Houses Seek Refrigerator Repair Relief

### Industry Advisory Groups Named

LOS ANGELES—Alarmed by the fact that no priority assistance has yet been made available for parts needed in the repair of household electric refrigerators, the Managers Hotel & Apartment Association in Los Angeles has circulated a pamphlet designed to call attention of managers and operators to the situation, and to collect facts that may aid in getting some sort of relief.

The Los Angeles apartment house men believe that they have something of a special situation in that most of the apartment houses are equipped with multiple-type systems with a central condensing unit, and the fact that many War production workers occupy the premises.

Says the pamphlet, in part,

"For lack of a tiny copper, brass, or steel part, the entire refrigeration system of a building may be cut off entirely. Thirty, 50, or 100 families may be permanently without refrigeration if such repair parts cannot be obtained.

"Apartment houses in Los Angeles and San Francisco are overwhelmingly equipped with multiple-refrigeration systems. If a breakdown occurs, the entire building is without refrigeration.

"Added to this is the fact that a large percentage of our tenants are engaged in War Production work. Apartment houses in Los Angeles and

San Francisco are serving the War effort effectively by providing clean, modern housing at a low price. Refrigeration is important if we are to do our job well.

"Apartment owners in Los Angeles should not expect any special privileges denied to building owners in other parts of the country. Neither should our tenants suffer an undue hardship, simply because in these two cities we are equipped with multiple refrigeration systems."

The report which the Managers Hotel & Apartment Association suggests be filled out is as follows:

REFRIGERATION REPORT  
Please answer all questions carefully and completely.  
Mail to:  
MANAGERS HOTEL & APARTMENT ASSN.  
516-517 Douglas Building  
Los Angeles, California

1. Do you have Multiple Refrigeration? \_\_\_\_\_  
Or Individual Refrigerators? \_\_\_\_\_  
2. How many apartments in your bldg.? \_\_\_\_\_  
3. How many persons reside in your building? \_\_\_\_\_  
4. How many of your tenants are engaged directly or indirectly in War Production work? \_\_\_\_\_  
Note: When husband is engaged in War work and wife is not otherwise employed—count as TWO PERSONS in Question 4.  
5. How many of your tenants are in the Service or are wives of Servicemen? \_\_\_\_\_  
6. Are you catering to War Production tenants?  
Name of Building \_\_\_\_\_  
Address \_\_\_\_\_  
Signed \_\_\_\_\_  
Manager, Supervisor, or Owner (Check which)

## Metals Get Scarcer, Batt Asking for More Substitution

WASHINGTON, D. C.—Industry and civilian consumers are facing a rapidly dwindling supply of materials, particularly metals, with war production demands eating up more and more resources, William L. Batt, chairman of the War Production Board requirements committee, and A. I. Henderson, director of materials, warned last week.

The past few months have been relatively easy with the military taking from the civilian to meet its needs, Mr. Batt pointed out.

But, he declared, this pool is nearly dry.

"I can see times ahead when a ship way may stand idle for lack of steel and an ammunition line may slow down for lack of copper and brass," he prophesied.

To offset such a dire situation so that the military machine may continue to run full steam ahead and that sufficient goods for essential civilian uses will be produced, Chairman Batt and Director Henderson have outlined a plan with the following essential points:

1. Long-range planning of requirements for materials and careful scheduling to meet them.

2. Revision of specifications to reduce the amounts of scarce materials used.

3. Widespread use of substitutes.

4. A vast increase in civilian cooperation with the national salvage program to speed up the flow of scrap, particularly metals and rubber.

5. Careful handling of scrap and secondary metal by industry to get the greatest possible use from them.

Among the things being done to increase the output of some of the important materials, Mr. Batt emphasized the following:

### STEEL

"We had capacity for about 83,000,000 tons of steel a year and in 1939, the last normal demand year, we used some 52,000,000 tons. Yet today we do not have enough steel in spite of the fact that for 22 months the industry has been operating at better than 90% of capacity and currently is operating at more than 99% of capacity. Capacity has already

(Concluded on Page 16, Column 2)

## Refrigerated Storage Space For Foods Is Near Bulging Point

NEW YORK CITY—The vital role of refrigerated warehousing in the war effort and the necessity for relaxing regulatory measures to give the "broadest possible freedom in the handling and movement of food products," were emphasized by J. R. Shoemaker, assistant director of the Division of Storage, Office of Defense Transportation, in an address June 2 to the Association of Food and Drug Officials of the United States at the Hotel Pennsylvania, in New York.

The tremendous task of storing an increasing volume of high-vitamin foods under refrigeration, Mr. Shoemaker said, and the growing demand for refrigerated storage facilities due to the acute shortage of cans have presented problems which the warehousemen are working out, and which are occupying the constant attention of the ODT.

"As many of you are aware," Mr. Shoemaker said, "high-vitamin perishable foods have assumed far greater importance in the entire food picture than has been the case in past years. They are now a 'must' in the diet of our armed forces as well as those of our allies, and of course in civilian life. There are three primary methods of conservation of perishable foods—canning, freezing, and dehydration. Each has its important place in the program.

(Concluded on Page 16, Column 1)

## Ideas For a Dealer Who's Still In There Pitching

This issue of the News is packed full of information for the household refrigerator and major appliance dealer on the subject of priorities (the kind he has to know about) and "how to beat the merchandise shortages."

Complete text of Order L-5-d is given, together with instructions in the proper use of forms. This Order governs the disposition of all "frozen" stocks of household refrigerators.

On page 4 is a suggestion of what to include in a PD-1A form for the purchase of a new electric range.

Ideas for obtaining and selling used appliances, on converting a showroom to a locker storage plant, on "selling" service work, will be found on pages 2 and 3.

## Delay Ruling on Price Control of Commercial Jobs

### Regulation No. 136 For Machines May Cover Part of Industry

WASHINGTON, D. C.—Formation of two important industry advisory committees to aid the WPB in formulating policies for the refrigeration and air conditioning industry have been announced recently by T. Spencer Shore, chief of the Bureau of Industry Advisory Committees of the WPB.

Sterling Smith, section chief of the Air Conditioning and Commercial Refrigeration Branch of WPB is the government presiding officer of the Refrigeration Condensing Unit advisory committee. Members are:

W. C. Allen, Lynch Mfg. Corp.; W. W. Higham, Universal Cooler Co.; Frank H. Faust, General Electric Co.; Byron E. James, York Ice Machinery Corp.; Charles Knox, Baker Ice Machine Co.; B. J. Scholl, Brunner Mfg. Co.; H. C. Morrison, Curtis Refrigerating Machine Co.; Lars Hanson, Carrier Corp.; Clyde Ploeger, Servel, Inc.; F. E. Jernberg, Mills Novelty Co.

A. H. Baer of the Air Conditioning and Commercial Refrigeration Branch is the government presiding officer for the Refrigeration Valve and Fittings Manufacturers Industry advisory committee, members of which are as follows:

Charles Benson, The Imperial Brass Mfg. Co.; F. L. Riggan, Sr., Mueller Brass Co.; G. J. Henry, Henry Valve Co.; Edward G. Mueller, Kerotest Mfg. Co.; K. M. Newcum, Superior Valve & Fittings Co.; E. J. Ferguson, Weatherhead Co.; V. L. Graf, V. L. Graf Co.; W. H. Pape, Crane Co.

P. R. P. Plan Made Compulsory For More Concerns

WASHINGTON, D. C.—Another step toward strict allocation of scarce materials and improved control of inventories was taken last weekend in an announcement by J. S. Knowlson, Director of Industry Operations, that all but a few classes of companies requiring more than \$5,000 worth of metal for the third calendar quarter of 1942 must apply for priority assistance under the Production Requirements Plan before July 1.

More than 10,000 companies, including most of those handling large war contracts, will be required to operate under Production Requirements Plan by the terms of a revision of Priorities Regulation No. 3 which will be issued within a few days. About 7,000 companies are now using the plan.

Preference ratings are assigned under the Production Requirements Plan only for specified quantities of materials to be obtained during a calendar quarter. Major metal using plants affected by the revised regulation will not be permitted to use any preference rating except ratings assigned to them by Production Requirements Plan.

(Concluded on Page 4, Column 4)

## Price Order Set For 'Warm Weather' Lines

WASHINGTON, D. C.—An order instructing retailers in methods by which they can establish their ceiling prices for a restricted list of seasonal warm weather merchandise not sold generally in March has been issued by Leon Henderson, price administrator. Ceilings on all seasonal goods went into effect on May 18 along with the General Maximum Price Regulation applying to retail sales.

The new regulation requires retailers of specified seasonal merchandise to obtain maximum prices by applying last season's percentage mark-up to a cost figure that cannot be more than the highest manufacturer's price in March and may be less.

Included in the list of goods are electric fans and ventilators, room coolers, and metal and wood chairs.

"Pricing provisions of the general regulations are broad enough to enable a fair determination of maximum prices for almost anything at any season," declared Administrator Henderson. "Issuance of the new summer seasonal regulation merely (Concluded on Page 4, Column 5)

# What Dealers Are Thinking and Doing About Merchandise Shortages

## Farmers Deserting To Factories Source Of Used Appliances

CAIRO, Ill.—The general influx of farmers and other rural residents into the cities for high-pay defense jobs has replenished appliance inventories for T. A. Pritchett, G-E appliance dealer here.

Mr. Pritchett, who averaged around 100 new box sales per year up till 1942, was faced with the problem of either closing up his store or going into some sideline—until he discovered that scores of farm homes in the rich delta land surrounding were being closed up by their owners joining the defense-job "bonanza."

Consequently, believing that he could buy used refrigerators, washing machines, etc., from these people, Mr. Pritchett circularized about 500 farms in the immediate vicinity, with an offer to pay cash at once for any used electrical appliance of any kind. A form letter, sent out to this number, brought 75 replies the first day, and a steady stream which hasn't let up yet—all from people electing to give up farm life altogether and willing to sell everything in their kitchens.

Making a maximum allowance of \$25 for any refrigerator, Mr. Pritchett in one month filled up the back of his store with used boxes of all sizes.

## Big Auto Showroom Changed To Locker Plant In 60 Days

ST. LOUIS—From a large automobile dealership into a 300-locker locker plant in the space of 60 days is the story of H. C. Fehl and H. C. Merry, automobile dealers at 5800 Delmar Boulevard here, who have remodeled 25% of the former automobile showroom into a complete new locker plant.

"We believe we can sell the same customers who formerly bought automobiles from us on the use of lockers," Mr. Merry said, "and that a centrally located plant which did not involve many miles of traveling for the locker users is bound to be successful." The Merry location, which is served by two bus lines and two streetcar lines expects 90% of its customers within year to be coming to the plant by either bus or street car, and thus has eliminated the tire question altogether.

The new locker plant was installed by Hussmann-Ligonier Co. of St. Louis, general refrigeration contractors. Mr. Merry and Mr. Fehl, who will operate the plant as partners, plan to lease locker space to customers in two price lines, and to sell foods, particularly meats, to them at wholesale prices. A large processing room for cleaning, cutting,

washing, etc., will be provided in the former automobile space, where foods will be wrapped to place in the lockers.

"We will provide our customers with constant inventories so they will know exactly what they have in stock in their lockers," Mr. Merry said. "Meats vegetables, fruits, and other foods are first chilled and then sharp frozen in a cabinet maintained at a temperature of -30° F., before being placed in the lockers which are kept around zero temperature. Housekeepers may come in and use the lockers themselves if they please, or call an attendant to enter the refrigerated area to extract their foods."

## Utility Aids Customers In Use of Appliances

OMAHA, Neb.—Armed only with advice and information with nothing to sell, 42 trained men and women electric service representatives of the Nebraska Power Co. are making door-to-door calls in the utility's territory to show appliance owners how to keep their appliances in tiptop shape and working at maximum efficiency now that the units must last for the duration.

To assure coverage of every home, the city has been divided into 24 territories with a representative assigned to each, while 24 territories outside Omaha have been similarly assigned.

## Copying Garages

### Protect Your Refrigerator By Having It Serviced!

Everyone should take the best care of their refrigerator in order to get the best performance at the lowest cost—and save more than greater care should be taken. There will be no more refrigerators for a long time to come and keeping your present one in perfect condition will be a measure of electrical refrigeration for the duration. Call us and let us give you refrigerator care.

#### SPECIAL 6 POINT SERVICE

OIL ELECTRIC MOTOR	All 6 Operations for
CHECK BELT	\$2.00
CHECK OIL IN COMPRESSOR	For 30 Days Only
CHECK THERMOSTAT	
CLEAN CONDENSOR	
CHECK FOR GAS LEAKS	

WE ARE ALSO EXPERTS IN SERVICING ELECTRIC RANGES, RADIOS AND ALL ELECTRIC APPLIANCES

**Mixon Radio & Refrigerator Co.**

Harry N. Mixon  
Osark, Ala.

Taking a cue from automotive repair shops which have long found combination offers attractive to the public, Mixon Radio & Refrigerator Co. of Ozark, Ala. is featuring a "Special 6-Point Service" on electric refrigerators for the price of \$2. Harry N. Mixon said it was definitely getting business for his concern. The pay is sufficient to compensate a man for going out and checking the refrigerator and it leads to sale of parts.

## Dealer Advises Check of Trade-In for Ice Trays

MIAMI, Fla.—It has been necessary for appliance dealers to check carefully refrigerators traded in by priority bearing customers for aluminum ice trays, according to Jack Webb, president of General Home Appliances.

Many people who can still buy new boxes, and finding or hearing that the latter have fewer aluminum trays or substitute materials, are inclined to turn in the old box minus the trays—placing a hardship on the dealer when the time comes to sell the reconditioned trade-in.

To get around this problem, Mr. Webb, who is supplying refrigerators to many defense housing projects and Army people in this suddenly militarized area, stipulates that no trade-in will be accepted unless it has its full quota of ice trays. Each box is checked when received, trays counted, and if any are missing, a man is sent out at once to reclaim these. Most people are willing to give them up when it is pointed out that the dealer cannot replace them from stock or is unable to obtain new ones.

## Cleveland League on the Offensive To Keep Public Informed of Vital Role of Appliances

CLEVELAND—Gearing all of its energies to a "Victory Program," which stresses the vital role of electricity in the home, for health, comfort, and economy, the Electrical League of Cleveland has gone "all out" in service to the consumer for the duration.

"For 32 years," says J. E. "Jack" North, president of the League, "the Electrical League has rendered signal service to Clevelanders; today, as never before, that service has a new significance. The League's first obligation in war, as well as in peace, is to keep the public fully informed on the uses of electricity and electrical equipment.

"Since our many services to the electrical industry must of necessity be reduced, owing to the demands of the government for raw materials, as well as upon plant capacities of manufacturers of electrical equipment for the production of munitions of war, the League's "Victory Program" is directed largely to the homemaker.

"While we may not expect to equal 1941's record of 12,748 inches of publicity secured through the co-operation of editors of newspapers and class publications, in which the advantages of the use of electrical equipment was brought to the attention of homemakers throughout the metropolitan area of Cleveland, we do have the right to believe that timely articles, which have to do with the use of electrical devices for the protection of health, for economy, and the release of time, will be printed.

"We propose to continue cooperative advertising which has to do with the conservation of eyesight, as well as maintenance and repair of appliances or equipment which cannot be replaced with new merchandise.

"Educational group meetings, through which we can cooperate with the Office of Price Administration, the Consumer's Defense Committee, and other Governmental agencies in promoting the efficient and economical use of electrical equipment, will be actively continued. Without this assistance many people may become 'penny wise and pound foolish.' Government officials agree that consumers should not be advised to save electricity the wrong way.

"The war makes it a patriotic duty to derive maximum value from every electrical device. Food preservation and food preparation, washing, ironing, cleaning, and air conditioning are essential to the Nation's health.

"Certainly refrigeration is of paramount importance. Food preservation for health's sake is no more vital today than ever before, but the enormous demands of war make it imperative that we do not carelessly waste food.

"We propose to participate in shows and exhibitions when policy or returns warrant the expenditure. Through public exhibits we shall be able to carry the message of electricity and its uses to thousands of

## IMAGINEERING: GETTING OUT OF THE GROOVE



easy really means easy. Then he did something about it!

**IMAGINEERING** is letting your imagination soar and then engineering it down to earth. It is ingenuity in modern dress.

**IT IS THE THING** that has enabled the aluminum industry to keep on top of a plane schedule, increased tremendously in numbers, but also calling for almost twice as much aluminum per plane as the average plane needed two years ago.

**IT IS WHAT EVERY ONE OF YOU** are doing on your war job. Simplification, standardization, training. New methods, new materials, new records.

**THIS WAR** is showing Americans what they really can do if they try.

**LET'S MAKE** a vow to carry this same spirit over into postwar America. We'll all have the skills, the habit of work, the thrill of doing. There will be lots of aluminum to make into better products than peacetime America ever knew. It will be a great day for Imagineers.

Aluminum Company of America, 1975 Gulf Building, Pittsburgh, Pennsylvania.

★  
**SO MUCH SOON**  
★

# ALCOA ALUMINUM



interested people, such as at the recently concluded Home and Flower Show, which attracted an attendance of 37,381, and at the Food and Home Show, with more than 110,000 visitors.

"We will continue the successful plan of contacting club leaders, teachers, students, and members of other representative groups, to explain how to get the most out of equipment they now own; how manufacturers, wholesalers, and dealers, who are thinking about the post-war period, may best approach the vast market that will be open to them.

"The Electrical League Lecture Bureau will furnish accomplished speakers to address clubs, societies, or other groups upon currently popular subjects including, 'Winter Air Conditioning for Health and Economy'; 'Light for Sight and Safety'; 'The Work-Less Kitchen'; 'Saving Money and Woman-power in the Home Laundry'; and 'Defending America With Good Food.'

"Members of the League's staff will give electrical instruction to groups either at the League auditorium or at such group's regular meeting places. There is no charge, of course, for these services.

"Purchasers of electric ranges will be contacted by Staff Home Economists who will explain electric cooking methods.

"Home lighting supervisors will assist lighting equipment dealers in maintaining displays of sight-saving lighting equipment and aiding dealers' customers in problems having to do with eye-sight conservation.

"Monthly meetings of the Electrical Maintenance Engineers Association will be continued as in the past."



## Producer of Plastic Tubing Reveals Good & Bad Points Learned In Tests

CHICAGO—The "if's" and "but's" in the use of plastics, and particularly plastic tubing, as substitutes in the refrigeration industry, were candidly outlined by C. B. Branch of the plastic sales division of Dow Chemical before the recent annual convention of the Refrigeration Service Engineers Society here.

Following were the most significant points developed by Mr. Branch in his discussion:

"Saran" plastic tubing, which Dow makes, has a recommended maximum operating temperature of 175° F.

Flare fittings to go with this plastic tubing are not being fabricated of the same material of which "Saran" is made.

"Saran" should not be used with ammonia as the refrigerant, and probably not with methyl chloride, for permanent applications. There is practically no permeability of the material when it is used with sulphur dioxide or "Freon-12," however.

Fatigue resistance of this plastic tubing is better under vibration tests than that of copper. It has also been shown in tests that it is resistant to cycles of freezing and thawing.

Tests have demonstrated that there is no moisture permeability.

Cost of "Saran" is about the same as that of copper, but it may be reduced soon.

The tubing is flared in the same manner as copper, with the tubing inserted in a holding block and the flare made with the proper tool. The "impact" type of flaring tool (in which the flare is made by striking a sharp blow) is not satisfactory.

On the fittings, which are produced by the injection molding method of plastic production, only a small wrench or pliers should be used in the tightening process. It should be tightened only slightly more than for a hand fit.

## 'Keep 'Em Running' Is Advised For Used Units

NEW ORLEANS—A tip for appliance dealers who are planning to specialize in reconditioned used refrigerators for the duration to compensate for lack of new boxes is to "keep 'em running" on the salesfloor, according to M. Magoni, major appliance buyer for the Max Barnett Furniture Co. here.

Barnett's major appliance showroom, located on the first floor of the store, usually has from six to eight used boxes on display simultaneously. All of them are kept continuously in operation, even though nothing is kept in them with the possible exception of cold drinking water.

"We keep the used boxes running not only because it makes a good impression on the prospect who sees at once that it is doing the job it is supposed to do, but because an old refrigerator deteriorates if left dormant," Mr. Magoni explains. "The refrigerant charge goes down, dust accumulates more rapidly, and new parts added when overhauling are likely to stick or get out of order. Consequently, we start up the box as soon as it hits the salesfloor, and leave it running for the whole time until it is sold."

## Servel, Inc. Reports Loss For April Quarter

EVANSVILLE, Ind.—Servel, Inc. reports a net loss of \$99,886 for the quarter ending April 30, as compared with a profit of \$646,057 in the April quarter last year.

Company officials attribute this second quarter loss to the freezing of refrigerator stocks under governmental order on Feb. 14 and to expenses incident to converting plant facilities for war production.

A net profit of \$94,709, or 5 cents on 1,726,926 shares, is reported for the six-month period to April 30, as against \$915,761, or 51 cents a share on 1,781,426 for the same period last year.

## Add Paint Division

HARRISBURG, Pa.—A large paint division has been added to the "Westinghouse Store" here to supplement diminishing electric appliances, Ira P. Fahrney, store manager, announced.

## Retailers Warned on Term Selling Evasion

NEW YORK CITY—Opening of new charge accounts with intent to convert later into instalment loans or retailers who never employed the charge account system but only instalment selling now to permit charge accounts violates the new law covering instalment loans and charge accounts, the Federal Reserve Bank of New York has warned retailers.

This interpretation is in strict conformity with the amendments announced last week tightening the Federal Reserve Board's Regulation W supervising consumer credit, the bank explained.

The Federal Reserve Board issued the following telegram to banks:

"Sale of a listed article (articles specifically covered by Regulation W) in a charge account with an agreement, arrangement, or understanding that the credit will later be converted into an instalment contract, violates Section 5 (a) and Section 11 (a) of Regulation W."

## Refrigerated Blanket For Surgery and Headache Treatment Told To Doctors

ST. PAUL—How painless leg amputations are possible without the employment of anaesthetics when one of medicine's latest discoveries, a mechanically refrigerated blanket, is employed, was described here at the annual meeting of the American College of Physicians.

Thick blankets containing rubber tubes carrying "Freon" are used to chill wounded legs where amputations are necessary. The legs are cooled almost down to freezing and a tourniquet is applied. In 45 cases already treated by this method, no shock or infection developed, the amputations were completely painless and the patients ate full meals immediately afterward.

One of the most important benefits of the new treatment is that it makes possible the removal of a leg half way between the knee and the ankle, a feat which has proven very difficult by other surgical methods.

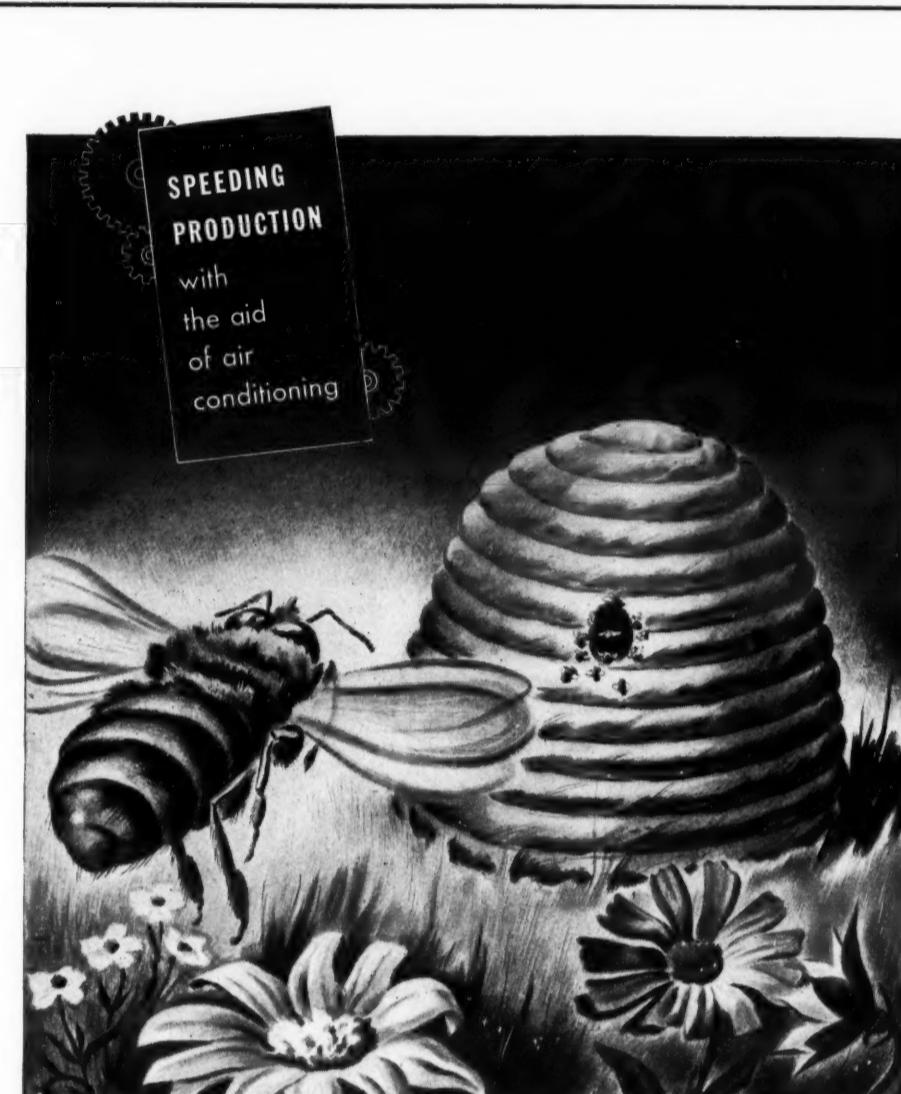
Refrigerated blankets are also

being used to give relief to persons suffering from migraine, sciatica, and neuralgic pains in arms and legs. In treating migraines, the blanket is cut to resemble a monk's hood.

## Store Aids Customers With 'Priority Bureau'

BIRMINGHAM, Ala.—So many things are rationed and there is so much confusion in the public mind about it, that Pizitz department store has established a "Priority Service Bureau" on its fifth floor to advise its customers.

Whatever a customer wants to buy, whether a gas range, an electric range, a circulating heater, plumbing fixtures, washing machine, bicycle or typewriter, the bureau will advise him and if he is entitled to make the purchase then help him fill out the necessary authorization forms.



## Fan dancer...

**D**ID YOU KNOW that the first fan dancers were bees? And that beehives were the first windowless buildings.

Great activity goes on inside, so a beehive needs good ventilation. Bees provide it themselves—they have "fanners" who create air movement by fanning their wings continuously.

Modern "blackout" buildings present much the same problem. To meet it, architects are developing new concepts of design that will be applied to many types of buildings after the war.

Why are high ceilings used in many buildings? One reason is to make room for windows—to let in air and light. But proper ventilation and light can be obtained today with lower ceilings and no windows. How? With modern air conditioning and lighting.

With the controlled conditions achieved in windowless plants, production problems are reduced. Variations in room temperature—formerly a cause of inaccuracies in high precision parts—are eliminated. Humidity

and lighting are held at levels best for workers' comfort and efficiency.

Today these "blackout" plants, and the refrigeration and air conditioning that make them possible, are contributing mightily to the war effort. And "Freon" safe refrigerants are helping them to do a more effective job.

Tomorrow our factories, stores and office buildings will reflect the lessons learned during this war. With the aid of "Freon" they will bring us new standards of efficiency, comfort and health. Kinetic Chemicals, Inc., Tenth and Market Sts., Wilmington, Del.

*Save vitally needed "Freon-12," repair parts and power—have your refrigerating system inspected regularly by a service man.*

**KINETIC**  
**FREON**  
REG. U. S. PAT. OFF.  
safe refrigerants

\*"Freon" is Kinetic's registered trademark for its fluorine refrigerants.



◀ This advertisement will appear in the June 22nd issue of TIME Magazine. It's the second in a series of six "Freon" advertisements directed to TIME's 3,000,000 influential readers. We want you to have the first look at it, because its purpose is to be of service to the entire refrigeration and air conditioning industry.

Note this phrase which will appear in these ads: "Save vitally needed 'Freon-12', repair parts and power—have your refrigerating system inspected regularly by a service man."

You can help us in this campaign by impressing on every user of refrigerants the need for proper equipment maintenance—to save power, repair parts and "Freon" refrigerants. Do this, and you will have made an important contribution to your country's war effort. Kinetic Chemicals, Incorporated, makers of "Freon" safe refrigerants.

## Suggestions For Filling Out a PD-1A Form on Range Sales

**MINNEAPOLIS** — North Central Electric Industries here has recently developed a suggested outline for use by dealers in making application for the necessary preference ratings to permit the sale and installation of new electric ranges.

The "reasons" given in their outline are only samples, of course, and it is essential that each dealer adhere to the facts in the particular case. The outline, together with its explanation, is as follows:

### SUGGESTED OUTLINE FOR FILLING IN PD-1A APPLICATION FOR PREFERENCE RATING ON ELECTRIC RANGES

Since a priority rating of A-9 or better is required before a dealer could sell or deliver an electric range, the only way such a rating can be obtained (except on Defense Housing) is to make an individual application in each case on Form PD-1A. This should be done in such case where a new electric range is desired to replace a worn-out stove of any kind, as well as cases where customer has no stove and needs one.

With appropriate variations, the PD-1A form may also be used to apply for priority ratings of A-10 or better to permit sale and delivery of electric (or gas) water heaters, space heaters, oil burners, stokers, and other "plumbing or heating" items covered by freezing Order L-79. When applying for priority ratings on such items you will of course refer to A-10 Ratings and Order L-79, instead of A-9 ratings under Order L-23-b which applies only to electric ranges.

Each PD-1A application form consists of four sheets: Instructions, Original, Duplicate, and Triplicate Copies. Only the Original and Duplicate copies are mailed to Washington after being properly filled out. Retain the Instruction Sheet and Triplicate copy for your own file.

The dealer signs and dates only the Duplicate Copy at the bottom of the "blank" page on which number questions or statements are answered.

Customers themselves may sign and send in such applications, but we believe it is better for the dealer to do this.

### HOW TO FILL IN FORM PD-1A APPLICATION ON THE "FACE" OF THE FORM:

**Do Not Fill in the Serial No. nor the "Certification."** Insert Dealers full name, address, and receiving plant if the latter is different than store address.

Under "Required Delivery Date" specify a DEFINITE DATE which is no earlier than actual need requires. Do Not say "soon as possible" or "within 10 days."

Under "Quantity Each Shipment" specify "One" for each individual appliance on which customer desires a rating.

Under "Value Each Shipment" give the actual selling price of the Electric Range or other item; the price which the customer is going to pay.

Under "Description" give the model number, make, and other pertinent data. It will be well to state whether this range is in dealers hands, or if it is available from distributor's stock. Then add this phrase "Priority Rating of A-9 or higher is required by terms of Order L-23-b for sale or delivery of electric ranges."

**ON THE "REVERSE" OF THE FORM** (consisting largely of blank space) fill in the answer to every numbered and lettered question listed on the Printed Instruction Sheet. Your statements regarding Questions No. 2-5 (a)—7 (b)—8 (c), (d), and (e) will vary with circumstances. For these answers we give you here with some suggestions which may be applicable. For the answers to numbered questions other than those noted above, your answers should closely follow our outline below:

1. Electric range for domestic cooking (State whether NO wiring material will be required, or whether such wiring has been arranged for without need of special priority application.

### 2. (SELECT STATEMENTS WHICH MAY BE APPROPRIATE, OR FRAME OTHERS SIMILAR, IN ACCORDANCE WITH THE FACTS.)

Customer is moving into new home on (date). Home is completely wired for electric range connection, gas service is not available (or) house is not piped for gas range service.

Customer is moving from furnished apartment to new (or old) home which he must furnish himself, (or) Moving in from outside are (or other state) having sold old equipment before moving, (or) is newly married and establishing home (and) has no cooking range for use in new location unless he can obtain one on priority rating.

Placed order for the range specified herein on (date, prior to May 2, 1942) and has paid cash, (or part cash, as case may be) for this range which is now frozen by Supplementary Order L-23-b, dated May 2, 1942. (If Customer is Defense or other essential worker, farmer, etc., give details, number in family, etc.)

(If the range requested herein is to replace an old stove which has been ruined by fire or tornado, or is worn out or damaged beyond practical repair, give full description, age, and condition of old stove.)

- 3. NONE
- 4. (a) NONE
- (b) NO
- (c) NONE

5. (a) Customers Name: .....  
Address .....

- (b) NONE
- (c) NONE
- (d) As shown on Reverse Side.  
No Preference Rating has been assigned, but rating of A-9 or better is required to obtain delivery.

6. THIS SECTION NOT APPLICABLE TO THIS CASE.

- 7. (a) No shipment can be obtained without rating of A-9 or better.

(b) (Insert name of one or more distributors from whom dealer regularly purchases electric ranges.)

- 8. (a) Not applicable

- (b) None

(c) NO (if customer has no stove at present) or, YES if an old stove or makeshift equipment is to be replaced, then describe why this is not suitable for new location or continued use.

- (d) NONE (if customer has no stove) (or) 15 to 20 HOURS OF USE (if customer is using old stove.)

(e) EATING OUT, OR LIVING WITH RELATIVES or AT HOTEL, OR USING MAKE-SHIFT hotplates, etc., or using old equipment which must be replaced (give reasons).

## Forced Use of the PRP Price Formula Set on Hot Weather Models Will Set Limits on Scarce Metals Use

(Concluded from Page 1, Column 4) represents the desire of OPA to make easier the pricing of a restricted list of highly seasonal goods."

The additional regulation instructs a retailer of summer goods to arrive at his ceiling by the lower of:

(1) The average cost to him of the commodity on purchases made between the close of his last year's summer selling season and the opening of this year's, or May 11, 1942, whichever date is later, or

(2) The net price he would have to pay to replace the commodity after May 11, this being at most the "highest March" price to which manufacturers and wholesalers are tied by the general regulation.

To the lower of these the retailer then may add:

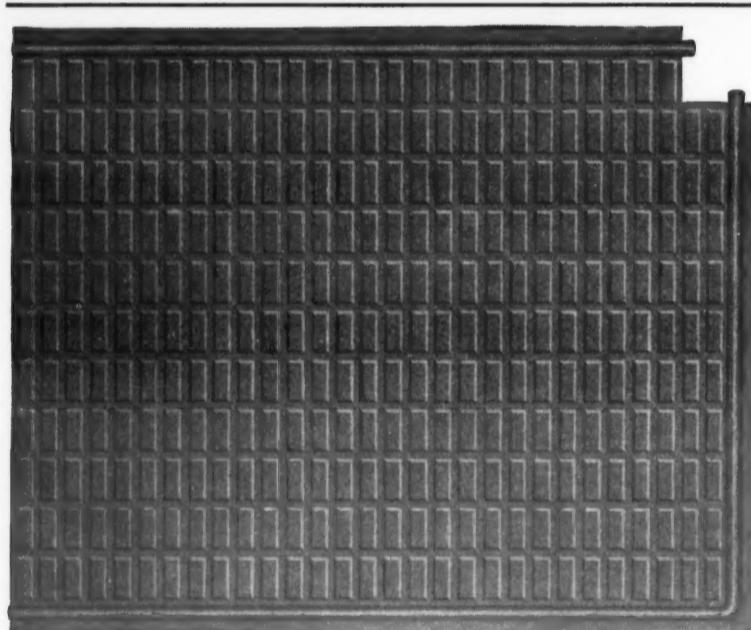
His last year's average percentage mark-up, or, if he is unable to establish this mark-up, then the average mark-up in the department in which he sold the same or a similar commodity during the last summer selling season—a 90-day period in the 12 months ending March 31, during which the retailer sold 75% of the same or a similar seasonal item.

The new order forbids a retailer to use the mark-up formula to determine his maximum prices if more than 5% of his annual sales of the particular article to be priced customarily occur in March. These sellers thus are required to price their summer merchandise by using the "highest March" price method given in the General Regulation.

Another feature of the new regulation is a provision intended to forestall the possible hardship that would follow if a retailer were required to use the General Regulation to set maximum prices for his new summer seasonal merchandise simply because he made an "out-of-season" sale in March of this year.

This particular provision states that if such a sale of 1941 goods was made in March, 1942, at a price which was: (a) no higher than the retailer's highest price during his 1941 summer selling season, and (b) substantially lower than the maximum price he would be permitted to charge by the new regulation's "mark-up" formula, then the retailer may arrive at ceiling prices for the particular seasonal commodity involved by applying the provisions of the new regulation.

However, if the "out-of-season" sale was made at a price in excess of last season's highest price and not substantially under the maximum price allowed by applying the mark-up formula, the retailer cannot use the new regulation, but must abide by the ceiling price obtained by using his "highest March" price.



## UNLIMITED PRODUCTION!

A broad statement during these trying days in Industry but—a completely machined plant with tremendous capacity, now stamps out—welds—assembles and dehydrates all Polar Evaporator Plates on a streamlined production basis.

Polar Refrigeration Evaporators need no copper and little preference metals. Your needs can be provided for any service intended for the armed forces and for food preservation.

Our engineers will help work out the use of Polar Evaporators to fit your refrigerator design.

NOTE: a new address—the General Office of Robert M. Green & Sons, Inc., is now situated at 221 South State Street, Syracuse, New York.



## POLAR EVAPORATOR PLATES

ROBERT M. GREEN & SONS, Inc.  
221-223 SOUTH STATE ST.  
SYRACUSE, N.Y.

Est. 1874

## A MONTH AGO . . . 95% TODAY . . . ALL OUT FOR VICTORY!

Thus, within thirty days of the April 27 issue of AIR CONDITIONING & REFRIGERATION NEWS, Universal Cooler Corporation joins forces one hundred per cent with Uncle Sam's Army, Navy and Marine Corps. Part of this all out effort is in the safeguarding of food and medical supplies through Universal Cooler Refrigeration Units installed in prominently known installations. The rest is through special government contracts covering other types of products essential for the successful prosecution of the war. These new products, like Universal Cooler Refrigeration Units, are another tribute paid to precision manufacturing ability.

**UNIVERSAL COOLER CORP., Marion, Ohio, U.S.A.**

Automatic Refrigeration Exclusively Since 1922

Universal Cooler of Canada, Ltd., Brantford, Ont.



# Announcing A SERVICE TRAINING PROGRAM FOR GENERAL ELECTRIC DEALERS

**THIS IS YOUR OPPORTUNITY TO GET REPAIR AND  
MAINTENANCE TRAINING ON ALL G-E HOUSEHOLD APPLIANCE LINES**

## National Refrigerator Training Week



A complete set of charts aids C. E. Ring, G. E. refrigerator service engineer, in pointing out to an attentive group just how a sealed machine operates.



Sound slide film frames are reproduced in booklet form. Before the meeting ends each service man receives his copy. It is invaluable as a guide to good service.



There's always time after the meeting for plenty of individual discussion. Here two interested service men get specific information on the famous Monitor top.

## June 22 to June 27

**IS FIRST OF THE TRAINING SERIES**

**HOW WELL** and **how quickly** you are able to repair your customers' appliances will largely determine your success or failure as a servicing dealer for General Electric household appliances.

In developing its product service program, General Electric kept this fact uppermost in mind. As a result, the newly announced dealer plan gives tremendous emphasis to product training than to any other consideration. Already, most detailed and informative product training programs have been written on G-E laundry equipment, electric ranges, Disposals and refrigerators. As time goes on, instructive material on other products will be developed, so that a servicing dealer may enjoy the benefit of the latest repair and maintenance technique uncovered by General Electric engineers and service specialists. Further, since training will be on a continuous basis, an "old" hand will have many opportunities to brush up on service, while the dealer who is compelled to employ fresh and unschooled "hands" at frequent intervals will find General Electric's new training program increasingly valuable.

### FIRST SCHOOL—REFRIGERATORS

The series of training courses will get off to a flying start with domestic refrigerator schools the week of June 22. This does not mean that refrigerator schools will not be held before and after that date . . . for they will be, many of them. It simply means that General Electric distributors want to start off these

training meetings on a national scale . . . in a way that will give scores of G-E dealers and their repairmen an opportunity to get refrigerator training as early as possible.

Some of the schools scheduled as this goes to press are listed below. Whether or not you see listed a meeting in your area, get in touch with your regular General Electric refrigerator distributor for full details. Also, ask him how you can become an authorized Appliance Service Center dealer, and get the identification shown below. This mark of appliance service is one of distinction and is given only to G-E dealers who are in a position to render prompt, efficient service to owners of G-E home appliances.

### SALUTE TO SERVICE

This 12-page book states General Electric's service policy and tells how you may become an authorized Appliance Service Center dealer. Ask your distributor for a copy.



THIS SIGN IDENTIFIES THE DEALER  
WHO MEETS THE NINE QUALIFI-  
CATIONS OF A GENERAL ELECTRIC AP-  
PLIANCE SERVICING ORGANIZATION.

### ENROLL NOW IN ONE OF THESE REFRIGERATOR TRAINING MEETINGS!

NORTHEASTERN DIST.	Danville, Va.	Date not set	Dixon, Ill.	June 24
Boston, Mass.	Richmond, Va.	Date not set	Appleton, Wisc.	June 24
Hartford, Conn.	Norfolk, Va.	Date not set	Terre Haute, Ind.	June 24
Providence, R. I.	Roanoke, Va.	Date not set	St. Louis, Mo.	June 24
New Bedford, Mass.	Lynchburg, Va.	Date not set	LaSalle, Ill.	June 25
	Wytheville, Va.	Date not set	Milwaukee, Wisc.	June 25
	Lexington, Va.	Date not set	Peoria, Ill.	June 26
METROPOLITAN DIST.	Monroe, N. Y.	June 25	South Bend, Ind.	June 26
N. Y. C.	N. Y. C.	Date not set	Bloomington, Ind.	June 26
ATLANTIC DISTRICT	Columbia, S. C.	June 23	Champaign, Ill.	June 30
Reading, Pa.	Tampa, Fla.	June 23		
Allentown, Pa.	Atlanta, Ga.	June 25		
Williamsport, Pa.				
Lancaster, Pa.				
Philadelphia, Pa.				
Wilmington, Del.				
Charlotte, N. C.				
Wilkes-Barre, Pa.				
Baltimore, Md.				
Clearfield, Pa.				
Harrisburg, Pa.				
Bridgeton, N. J.				
Washington, D. C.				
Raleigh, N. C.				
Eliz. City, N. C.				
	Date not set			
EAST CENTRAL DISTRICT				
Cleveland, Ohio				
Detroit, Mich.				
Charleston, W. Va.				
Columbus, Ohio				
Syracuse, N. Y.				
Cincinnati, Ohio				
CENTRAL DISTRICT				
Chicago, Ill.				
Rockford, Ill.				
Dubuque, Iowa				
Madison, Wis.				
Indianapolis, Ind.				
	June 23			

WEST CENTRAL DIST.

Sioux City, Iowa

Omaha, Neb.

Des Moines, Iowa

Denver, Colo.

Grand Forks, N. D.

La Crosse, Wisc.

Kansas City, Mo.

Mankato, Minn.

Davenport, Iowa

Joplin, Mo.

Minot, N. D.

Dubuque, Iowa

Duluth, Minn.

Sioux Falls, S. D.

June 24

June 24

June 25

June 25

June 25

June 25

June 26

June 26</

## Text of Government Order on Method For the Distribution of All Household Refrigerators

TITLE 32—NATIONAL DEFENSE  
CHAPTER IX—WAR PRODUCTION  
BOARD  
Subchapter B—DIVISION OF INDUSTRY  
OPERATIONS  
PART 989—DOMESTIC MECHANICAL  
REFRIGERATORS  
SUPPLEMENTARY GENERAL  
LIMITATION ORDER L-5-d  
Section 989.5—SUPPLEMENTARY GEN-  
ERAL LIMITATION ORDER L-5-d  
(a) Definitions. For the purposes of this  
Order:

(1) "Person" means any individual, partnership, association, business trust, corporation, governmental corporation or agency, or any organized group of persons whether incorporated or not.

(2) "Domestic Mechanical Refrigerator" means any refrigerator for household use which operates either by compression or absorption and which has a net capacity (N.E.M.A. rating) of 16 cubic feet or less. A low temperature mechanical refrigerator designed for the storage of frozen foods or for the quick-freezing of food, where the low temperature compartment customarily operates at a temperature of not higher than 15° above zero (Fahrenheit) and contains 75% or more of the total refrigerating space in the refrigerator, shall not be considered a Domestic Mechanical Refrigerator.

(3) "New Domestic Mechanical Refrigerator" means any Domestic Mechanical Refrigerator which has never been used by an ultimate consumer, including any such refrigerator which has been used merely for demonstration purposes.

(4) "Manufacturer" means any person who manufactures or assembles New Domestic Mechanical Refrigerators.

(5) "Dealer" means any person (other than a Manufacturer or Distributor) engaged in the business of making sales at retail of new Domestic Mechanical Refrigerators to the public.

(6) "Distributor" means any person engaged in the business of selling New Domestic Mechanical Refrigerators to Dealers for resale.

(7) "Transfer" means to sell, lease, trade, deliver, ship, or otherwise transfer a New Domestic Mechanical Refrigerator. "Transfer" does not include a transfer of title merely for security purposes or to a person financing a conditional sale, or a similar transaction made simultaneously with the transfer of the refrigerator itself to the purchaser; nor does it include the sale, lease, or delivery of any New Domestic Mechanical Refrigerator as part of the sale, lease, or delivery of the dwelling unit or other premises in which such refrigerator is installed for use.

(b) **Restrictions on Transfers of New Domestic Mechanical Refrigerators.** On and after the effective date of this Order, irrespective of any contract or commitment made prior thereto, no Person shall Transfer or accept any Transfer of any New Domestic Mechanical Refrigerator, except that:

(1) Any New Domestic Mechanical Refrigerator may be transferred pursuant to a Certificate of Transfer under the provisions of paragraph (c) or pursuant to other specific authorization of the Director of Industry Operations.

(2) Any New Domestic Mechanical Refrigerator may be transferred in fulfillment of any contract or purchase order for delivery of any such refrigerator to or for the account of the Army or Navy of the United States, the United States Maritime Commission or the Panama Canal.

(3) Any New Electric (but not Gas or Kerosene) Domestic Mechanical Refrigerator which at 10 A.M. Eastern War Time, Feb. 14, 1942, was in the inventory of a Dealer, or of any other Person not a Manufacturer or Distributor, may be transferred by any Person to any other Person

without limit as to the number of transfers of any such refrigerator which may be made. Any New Electric Domestic Mechanical Refrigerator which was in the hands of a Manufacturer or Distributor at 10 A.M. Eastern War Time, Feb. 14, 1942, but had been bought and fully paid for by a Dealer or other purchaser prior to that time, shall be deemed to have been in the inventory of the purchaser at 10 A.M. Eastern War Time, Feb. 14, 1942.

(4) Any New Gas or Kerosene Domestic Mechanical Refrigerator which at 10 A.M. Eastern War Time, Feb. 14, 1942, had been bought and fully paid for by an ultimate consumer, and was in the hands of the seller at that time may be delivered to the purchaser.

(5) Any shipment or delivery of New Domestic Mechanical Refrigerators pursuant to Limitation Order L-5-b (or pursuant to specific authorization of the Director of Industry Operations under that Order) which was in transit before the effective date of this Order may be completed.

(6) Any Person may distraint or levy by execution, attachment or similar form of judicial process, on any New Domestic Mechanical Refrigerators, or repossess them on default, but may not Transfer them thereafter except pursuant to the provisions of subparagraphs (b) (1) or (b) (2), unless the refrigerators come within the provisions of the first sentence of subparagraph (b) (3).

(7) Any Manufacturer may sell any New Domestic Mechanical Refrigerators to Defense Supplies Corporation or any other corporation organized under Section 5 (d) of the Reconstruction Finance Corporation Act as amended, any such corporation may resell any such refrigerators to the Manufacturer from whom they were purchased.

(c) **Transfer of New Domestic Mechanical Refrigerators by a Certificate of Transfer.** The Director of Industry Operations may in his discretion issue a Certificate of Transfer in either of the following forms:

(1) A Certificate of Transfer on Form PD-428 may be issued pursuant to a written application filed on Form PD-427 in accordance with the instructions contained therein by a person desiring to purchase one or more New Domestic Mechanical Refrigerators. Each such Certificate of Transfer, when signed by the Director of Industry Operations, authorizes the transfer to the person named of the refrigerators mentioned therein, in accordance with the terms stated. If the Certificate is presented to a Dealer or Distributor who is unable to fill the order from his stock of refrigerators, such Dealer or Distributor may obtain the refrigerators necessary to fill the order by placing a written purchase order for such refrigerators with a Manufacturer, Distributor, or other person endorsing thereon a statement in the following form:

"I (We) have received Certificate of Transfer, No. ...., signed by the Director of Industry Operations, covering these refrigerators, and do not have them in stock."

Name of Company \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

Any person with whom a purchase order bearing such an endorsement is placed may, if he does not have enough refrigerators in stock to fill the order, extend it by placing his own purchase order with a Manufacturer or other person holding such refrigerators and endorsing thereon a statement in the following form:

"I (We) do not have these refrigerators in stock and they are required to fill an order placed with me by ..... who certifies that he has received Certificate of Transfer, No. ...., covering these refrigerators."

Name of Company \_\_\_\_\_  
By \_\_\_\_\_  
Title \_\_\_\_\_

Any person with whom a purchase order for New Domestic Mechanical Refrigerators is placed having an endorsement in either of the above forms, unless he knows or has reason to believe it to be false, shall be entitled to rely on such endorsement and may transfer the refrigerators specified in such order in accordance with its terms.

(2) A Certificate of Transfer on Form PD-430 may be issued in order to permit the Transfer of New Domestic Mechanical Refrigerators

(i) from one warehouse or place of storage to another warehouse or other place of storage whether or not it involves any change in the ownership or title of such refrigerators, or

(ii) from any person to any other person when the transfer does not come within the provisions of subparagraph (c) (1).

(d) **Instructions and Forms.** The Director of Industry Operations may issue from time to time such instructions and forms as may be required to carry out the provisions of this Order.

(e) **Records.** All persons affected by this Order shall keep and preserve, for not less than two years, accurate and complete records concerning inventories, production, and sales.

(f) **Audit and Inspection.** All records required to be kept by this Order shall, upon request, be submitted to audit and inspection by duly authorized representatives of the War Production Board.

(g) **Reports.**

(1) Each Person who shipped any New Domestic Mechanical Refrigerator during the period from Feb. 14, 1942 to the effective date of this Order inclusive, to the Army or Navy of the United States, the United States Maritime Commission or the Panama Canal, or pursuant to any order bearing a preference rating of A-10 or higher, shall file with the War Production Board a report on Form PD-432 on or before the tenth day after the effective date of this Order, showing all such shipments.

(2) Each Person holding any New Domestic Mechanical Refrigerators on or

after the effective date of this Order which he cannot Transfer under the terms of this Order (except under the provisions of subparagraphs (b) (2) or (b) (7) without a Certificate of Transfer, shall file with the War Production Board

(i) within ten days of the effective date of this Order a report on Form PD-431, listing all such refrigerators on hand on the effective date of this Order, and

(ii) on or before the next business day after any shipment to or from his stock of such refrigerators a report of all such shipments on Form PD-431.

(3) All Persons affected by this Order shall file with the War Production Board such other reports and questionnaires as the Director of Industry Operations shall, from time to time, prescribe.

(k) **Communications.** All reports to be filed and other communications concerning this Order should be addressed to the War Production Board, Washington, D. C. Ref:L-5-d.

(l) **Violations.** Any person who wilfully

violates any provision of this Order, or who, in connection with this Order, wilfully conceals a material fact or furnishes false information to any department or agency of the United States, is guilty of a crime, and upon conviction may be punished by fine or imprisonment. In addition, any such person may be prohibited from making or obtaining further deliveries of or from processing or using materials under priority control and may be deprived of priorities assistance.

(j) **Order L-5-b Superseded.** On and after its effective date the provisions of this Order shall supersede all the provisions of Supplementary Limitation Order L-5-b.

(k) **Effective Date.** This Order shall take effect at 12:01 A.M. Eastern War Time, June 15, 1942, and may be amended or revoked by the Director of Industry Operations at any time.

Issued this 26th day of May, 1942.  
J. S. Knowlson  
Director of Industry Operations

## Instructions on Making Applications and Proper Use of the Transfer Certificate

WAR PRODUCTION BOARD  
DIVISION OF INDUSTRY OPERATIONS  
Procedure for the distribution of New  
Domestic Mechanical Refrigerators  
under Limitation Order L-5-d  
Effective June 15, 1942

### A. General Statement.

The War Production Board is in charge of the allocation and distribution of stocks of New Domestic Mechanical Refrigerators which are frozen under Order L-5-d. These stocks include all new electric refrigerators in the hands of manufacturers and distributors and all new gas and kerosene refrigerators in the hands of manufacturers, distributors, dealers, and other persons holding them for sale. To accomplish the proper and orderly distribution of these refrigerators in accordance with the provisions of Order L-5-d, the following procedure has been established.

### B. How Agencies of the Federal Government Obtain Refrigerators.

The Army and Navy of the United States, the United States Maritime Commission, and the Panama Canal may purchase new refrigerators from any person under the terms of Order L-5-d without filing an application or receiving a Certificate of Transfer as described hereafter.

The National Housing Agency, the United States Public Health Service, the Board of Economic Warfare, the Office of Lend Lease Administration and the Procurement Division of the Treasury Department should fill out an application on Form PD-427 for any refrigerators which they may require, and file such application with the War Production Board.

Any other agency or department of the United States Government wishing to obtain refrigerators for official use should make out such an application and file it with the Procurement Division of the Treasury Department, Washington, D. C.

### C. How Other Persons Obtain Refrigerators.

Other persons whose requirements for refrigerators are essential to the war effort or for the preservation of public health should make out applications on Form PD-427 and file them with the appropriate governmental agency in accordance with the following list:

#### Requirement Connection

Publicly Financed War housing Projects.

Department or Agency with which Application should be filed

National Housing Agency, Office of the Administrator, Washington, D. C.

Privately Financed War Housing Projects (To be filed by the Builder or Owner.)

Local Federal Housing Administration Insuring Office

Public Health Needs (Hospitals, Doctors, Medical Laboratories, Druggists, American Red Cross, Day Nurseries, and other medical requirements.)

United States Public Health Service, Office of Surgeon General, Washington, D. C.

#### Export

Board of Economic Warfare, Office of Export Control, Washington, D. C.

All questions concerning the proper direction of applications should be referred to the War Production Board, Washington, D. C. Ref:L-5-d.

It is expected that no refrigerators will be released from the frozen stockpile except to persons whose applications have been approved by one of the foregoing agencies of the Federal Government. Since the number of refrigerators in the frozen stockpile is too small to permit the allocation of refrigerators to individual defense workers, the War Production Board does not expect to release any

signed copy of the Certificate to the person from whom he is to purchase the refrigerators. If that person holds the refrigerators in stock, he may ship them in accordance with the provisions of the Certificate.

In those cases where the person to whom the Certificate is presented by the applicant does not have the proper model or models required to fill the order covered by the Certificate, he is authorized to obtain from a distributor or manufacturer the refrigerators necessary to fill the order.

(Concluded on Page 7, Column 3)

## SAVE STEEL FOR VICTORY

RETURN EMPTY CYLINDERS

★ Steel is precious. Every pound counts in filling vital Victory needs. Little can be allocated now for new refrigerant cylinders.

You can help Ansul and all manufacturers by returning empty cylinders at once... by keeping every cylinder at work. In doing this, you help the Nation, help yourself, and help your customers. Keep every cylinder on the job—all the time!

**ANSUL**

ANSUL CHEMICAL COMPANY • MARINETTE, WISCONSIN

HELP YOUR JOBBER HELP US KEEP 'EM ROLLING!



## NATURE CREATES MAN PRESERVES

••• and MARLO equipment makes efficient preservation possible:

Fin Coils • Unit Product Coolers

Evaporative Condensers

Brine Spray L. T. Units • Industrial Coolers

Industrial Air Conditioning Units

Low Temperature Electrical Defrosting Units

They are all in the service now to help Uncle Sam.

## "MARLO MEANS HEAT TRANSFER EQUIPMENT"

MARLO  
COIL COMPANY  
ST. LOUIS, MISSOURI

**Application Form PD-427**

PD-427

WAR PRODUCTION BOARD  
DIVISION OF INDUSTRY OPERATIONS  
WASHINGTON, D. C.

APPLICATION FOR AUTHORIZATION TO PURCHASE  
NEW DOMESTIC MECHANICAL REFRIGERATORS

NOT TO BE FILLED IN BY APPLICANT

To be entered only by local Federal Housing Administration Insuring Office	To be entered only by Government Agency Central Office	To be entered only by War Production Board
Approved ..... Rejected .....	Approved ..... Rejected .....	Approved ..... Rejected .....
Signed ..... Title ..... Date ..... Remarks:	Signed ..... Title ..... Date ..... Remarks:	Signed ..... Title ..... Date ..... Remarks:

1. Agency Applied To (See Instructions)

Name ..... Address .....

2. Name of Establishment in which to be Installed:

Address of Establishment .....

3. Description of Refrigerators for which Application is Made

Quantity Desired	Cubic Foot Capacity	Current Voltage Frequency Gas or Kerosene	Preference as to Make And Model Number	Shipment Date Desired	Remarks

If Left Hand Door Swing is Absolutely Necessary, so Indicate Under Remarks.

4. Justification for Application (See Instructions)

5. Project Reference Number (if any) ..... Priority Rating (if any) .....

Basis of Assignment of Priority Rating .....

6. If You Have Made Previous Application for Refrigerators for Same Installation, Give

Application Number ..... Date .....

## CERTIFICATION BY APPLICANT

7. I ..... certify that I am the applicant (or, if the applicant is a government department or agency or a state or other political entity or division thereof or a partnership or corporation,) that I am duly authorized to make this application; that I have read this application; that all statements and answers made herein are true.

Applicant.....  
Authorized Representative.....  
Title.....  
Address.....  
Date.....

(To be signed by the applicant. If the applicant is a government department or agency or a state or other political entity or division thereof, or is a company, corporation or other firm, the name of the company or firm should be shown under "applicant." The person authorized to negotiate the purchase shall sign as the "authorized representative.")

Section 35 (A) of the United States Criminal Code, 18 U.S.C.A. 80, makes it a criminal offense to make a false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

INSTRUCTIONS FOR FILING  
FORM PD-427

This application for New Domestic Mechanical Refrigerators is part of the program of the War Production Board to conserve existing stocks, allowing new refrigerators only when needed specifically in war effort, including public health. Your cooperation in supplying complete and accurate information will advance this program.

Applicants should not normally apply for refrigerators more than 60 days in advance of the date on which shipment is necessary.

## A. Departments and Agencies of the Federal Government.

The United States Army, Navy, Maritime Commission and Panama Canal are permitted to purchase refrigerators from any person without making application on this form. The National Housing Agency, the United States Public Health Service, the Board of Economic Warfare, the Office of Lend Lease Administration, and the Procurement Division of the Treasury Department should fill out this form for any refrigerators which they require and file the application directly with the War Production Board. Any other agency or department of the Federal Government wishing to obtain refrigerators for its official use should fill out this application and file it with the Procurement Division of the Treasury Department, Washington, D. C.

## B. Other Persons.

Any other person whose requirements for refrigerators are essential to the war effort or for the preservation of public health should fill out this application and file it with the appropriate governmental agency in accordance with the list below. Since the number of refrigerators in the government's stockpile is too small to permit the allocation of refrigerators to individuals, including defense workers, applications should not be filed for any such purposes, except in connection with an approved war housing project.

## Requirement Connection

Department or Agency with which Application Should Be Filed

Publicly Financed War Housing Projects.

Privately Financed War Housing Projects (to be filed by the builder or owner).

Public Health Needs (hospitals, doctors, medical laboratories, druggists, American Red Cross, day nurseries, and others for medicinal or surgical needs).

Export.

## C. Disposition of Applications and Number of Copies.

The applicant will prepare this application form in triplicate. He will retain one copy for his files. The applicant must sign the original and one copy, sending both to the Office in Washington, D. C., of the proper Government Department or Agency as per above schedule, except that applications in connection with privately financed war housing projects must be submitted to the Local Federal Housing Administration Insuring Office for the area for transmittal to the National Housing Agency in Washington, D. C.

## Summary of Rules On the Transfer Of Household Boxes

(Concluded from Page 6, Column 5)  
by endorsing on his purchase order the following statement:

"I (We) have received Certificate of Transfer, No. ...., signed by the Director of Industry Operations, covering these refrigerators, and do not have them in stock."

Name of Company \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

Any person with whom a purchase order bearing such an endorsement is placed may, if he does not have enough refrigerators in stock to fill the order, extend it by placing his own purchase order with a Manufacturer or other person holding such refrigerators and endorsing thereon a statement in the following form:

"I (We) do not have these refrigerators in stock and they are required to fill an order placed with me by ..... who certifies that he has received Certificate of Transfer, No. .... covering these refrigerators."

Name of Company \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

Under the provisions of Order L-5-d, any person with whom a purchase order for new domestic mechanical refrigerators is placed having an endorsement in either of the above forms, unless he knows or has reason to believe it to be false, shall be entitled to rely on such endorsement and may transfer the refrigerators specified in such order in accordance with its terms.

## E. Summary of Persons Who May Trans-

fer New Domestic Mechanical Refrigerators and How Such Transfers May be Made.

1. A manufacturer may transfer any new domestic mechanical refrigerator a. to or for the account of the Army, Navy, Maritime Commission or Panama Canal without any Certificate;

b. to any holder of a Certificate on Form PD-428 signed by the Director of Industry Operations in accordance with the terms of such Certificate;

c. to a distributor or dealer

i. in fulfillment of an order for delivery to or for the account of the Army, Navy, Maritime Commission or Panama Canal,

ii. for resale in accordance with Section D above.

2. A distributor may transfer any new domestic mechanical refrigerators

a. to or for the account of the Army, Navy, Maritime Commission or Panama Canal without any Certificate;

b. to any holder of a Certificate on Form PD-428 signed by the Director of Industry Operations in accordance with the terms of such Certificate;

c. to any dealer or other person

i. in fulfillment of an order for delivery to or for the account of the Army, Navy, Maritime Commission or Panama Canal, or

ii. for resale in accordance with section D above.

3. A dealer or any other person may transfer new domestic mechanical refrigerators

a. to or for the account of the Army, Navy, Maritime Commission or Panama Canal without any Certificate;

b. to any holder of a Certificate on Form PD-428 signed by the Director of Industry Operations in accordance with the terms of such Certificate.

F. Cancellation of Certificates of Transfer  
(Form PD-428)

If for any reason, it is found necessary to cancel or change a Certificate of Transfer, the Director of Industry Operations may issue a cancellation on Form PD-428. The original signed copy of Form PD-428 will be mailed to the person authorized by the Certificate of Transfer (Form PD-428) to obtain the refrigerators.

Two copies of the cancellation form will be sent to the manufacturer or other person designated on the Certificate of Transfer to handle the transaction. Such person should send one copy to any distributor or dealer who was involved in the transaction.

## G. Transfers of New Domestic Mechanical

Refrigerators for Warehousing or Other Purposes.

The Director of Industry Operations, in his discretion, may issue an authorization for transfer of new domestic mechanical refrigerators on Form PD-430 to permit the movement of frozen refrigerators from one place of storage to another with or without a transfer of title. Any person wishing to obtain permission for such a transfer should apply by letter to the War Production Board, Washington, D. C., Ref: L-5-d, setting forth all the relevant facts. Shipments will not normally be authorized from a manufacturer to a distributor or other person unless the transferee has insufficient stocks of refrigerators to fill orders which the War Production Board expects to authorize in the area served by that person.

The original signed copy of Form PD-430 will be sent to the shipper as his authority to make the shipment. Another copy will be sent to the person who is to receive the refrigerators.

H. Reports.

1. Dealers, distributors, and manufacturers must report all new domestic mechanical refrigerators shipped from Feb. 14, 1942, to the effective date of Order L-5-d to the United States Army, Navy, Maritime Commission or Panama Canal or pursuant to orders bearing Preference Ratings of A-10 or higher.

a. This report is to be made on Form PD-432 and mailed to the War Production Board within ten days after the effective date of Order L-5-d.

b. One copy should be sent to the War Production Board and one copy retained for the files of the person reporting.

2. Distributors and manufacturers of electric refrigerators, and dealers, distributors, and manufacturers of gas and kerosene refrigerators must file reports on Form PD-431, in accordance with the instructions thereon, as follows:

a. Within ten days after the effective date of Order L-5-d, refrigerators on hand as of the effective date of the Order must be reported.

b. On and after the effective date of the Order, any shipments to or from stock must be reported on or before the next business day.

Any person who does not receive copies of Form PD-431 by June 15, 1942, should place a request for such forms with the Household Refrigerator Section, Division of Industry Operations, War Production Board, Washington, D. C.



... and  
not only  
TIRES!

## CONSERVATION AND MAINTENANCE

## ARE All-Important NOW

All of us are keenly aware of the necessity of conserving our automobile tires for the duration. Likewise you who have the responsibility of maintaining refrigeration equipment must know that your job of material conservation is more important than ever today.

Due to wartime shortages of material, we must realize that many refrigeration systems will have to be maintained without the benefit of priorities to cover replacement parts.

✓ Examine the sight glass in the liquid line ahead of the Thermo Valve. There should be a solid column of liquid going to the Thermo Valve at all times during the "on cycle."

✓ Be sure to thoroughly clean the filters ahead of all expansion and solenoid valves.

An amazing amount of damage is done to the pin and seat of an expansion valve if there is gas in the liquid line of a refrigeration system due to shortage of refrigerant charge — this shortens valve life, impairs efficiency.

Although Alco Valve Company is main-

In view of this fact, Alco Valve Company publishes in this series of advertisements valuable service suggestions to enable you to maintain your present valves for the longest possible time.

Two of the most important factors to guard against are (1) lack of refrigerant charge and (2) dirt in the system.

Therefore, we suggest that you carefully check the following points:

taining its traditional high standards of materials and precision manufacturing, we urge all users of Thermo Valves to follow these simple service suggestions to further extend the exceptionally long life of every Alco Refrigerant Control.

A L C O   V A L V E   C O M P A N Y

2620 Big Bend Boulevard, St. Louis, Missouri



# Air Conditioning & REFRIGERATION NEWS

Trade Mark registered U. S. Patent Office; Established 1926 and registered as Electric Refrigeration News

F. M. COCKRELL, Founder

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## Refrigeration Will Help Win the War

## What Americans Fear

WE AMERICANS are being continually told by Washington bigwigs that we are apathetic, that we don't know there is a war going on. Frequently one hears, in off-the-record conversations by Washington officials, that a major purpose of some of the maze of rationing and other you-do-as-I-tell-you regulations is to "wake up the people" and let them know that they are at war.

In answer, we of this industry can truthfully say that we are probably more aware of the war than almost any other group you can name. Thousands upon thousands of household refrigerator dealers and salesmen are faced with the loss of their businesses, their investments, their homes, their livelihoods. Manufacturers of household refrigerators have summarily been told to quit the business, and start manufacturing something different and strange—involved a long time lag for retooling and engineering, during which they have no source of income.

Commercial refrigeration people have had their normal markets padlocked, but through great expenditure of capital, time, and ingenuity have turned themselves inside out to remake themselves into war production specialists.

### LIVES UPSET, PERSONNEL SCRAMBLED BY WAR

Being a young industry employing young men, we have been hit harder by the draft than comparable groups. Taking AIR CONDITIONING & REFRIGERATION NEWS as an example, eight out of fifteen men are now in the armed services.

To those of us still in the industry, the revising of our lives and our work

to fit into the war program has been immensely complicated by the necessity of trying to interpret and comply with a running stream of governmental orders having to do with the winding up of the business from which the government has just locked us out. The mental gymnastics required for this sort of thing (which we are supposed to be doing with our left hands while converting to war production with our right) have been further complicated by the mass of conflicting rumors which always precede such orders, and by having to deal with a dozen different government agencies, none of which ever seem to see eye-to-eye.

### REVERSE PSYCHOLOGY ON WAR HAS LED TO APATHETIC VIEW

We are not complaining. We expect to be dislocated, to be made uncomfortable, to lose our property, and even our lives in time of war. We realize that government officials are overworked and need our sympathetic cooperation. We'll make any sacrifice for our country. But please don't insult us on top of all that. Brother, we know we're at war. We've had the props knocked out from under us. We are war casualties already.

As a matter of fact, we think the government needs the services of a good merchandising-minded psychologist. In trying to "sell the war" to us, somebody is using reverse psychology—and perhaps that's at the root of the public's so-called "apathy."

They are trying to sell us on the idea that we have to give up things, deny ourselves. They don't offer the people anything. It's like trying to sell a refrigerator simply by saying:

"Buy this refrigerator. It will cost you \$150 of your hard-earned money. That is all."

To sell a refrigerator, you have to tell the prospect what it will do for him, what he will get out of it, how much he will get for his money in terms of satisfaction.

### PUBLIC NEEDS TO BE SOLD A POSITIVE ATTITUDE

This is simple psychology. It has never failed to work. And it always results in making the prospect work harder to get what he wants. If the government wants Americans to abandon their so-called "apathy" and work harder to win the war, why doesn't someone begin to sell the idea of the better post-war world for which we are working and fighting?

As the champion hog-caller said in explaining how he got the hogs to come in answer to his call: "You must make the hogs think you have something for them."

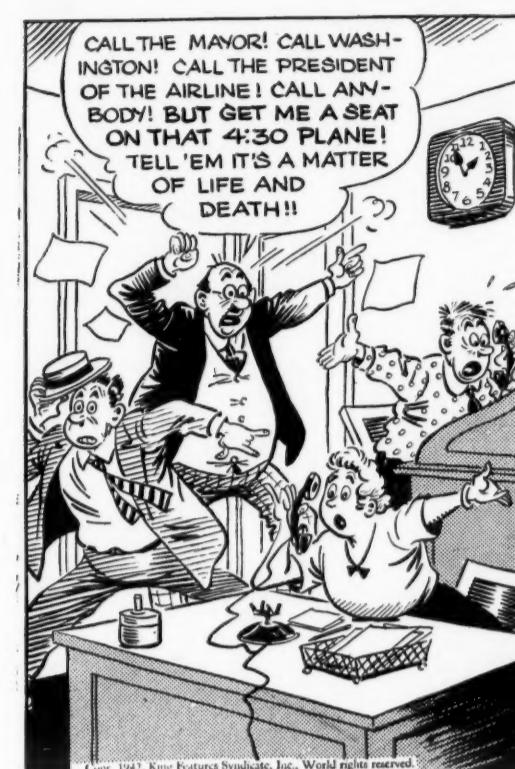
Here at the News we're in close contact with a segment of public opinion representing a nationwide group which has probably had its morale undermined and blasted more than any other. Every day we receive plaintive, worried letters. Every week we talk to scores of men. And what they all say adds up to this:

"We're at war, and we'll do anything, sacrifice anything. But what about after the war? Will all this regimentation continue, get worse? Will money be worth anything? Will we fight for freedom only to lose it?"

Put simply, it's our belief that the American people are somewhat "apathetic" about this war because of a two-fold apprehension of post-war collapse. The people fear:

### They'll Do It Every Time . . . . .

By Jimmy Hatlo



(1) A bigger depression than that of the 1930's.

(2) Socialization and the loss of their freedom.

These same fears contributed largely to the fall of France. They can work great harm here, can impede our total war effort, can lower our morale and efficiency.

Furthermore, if enough people are sold this defeatist philosophy, if enough believe it and accept it, the defeatist fears will come true.

### AMERICANS LIKE AMERICA AND WILL FIGHT FOR AMERICA

If the nation's leaders—business as well as governmental—could reassure the populace that they are capable not only of saving private enterprises, but of bringing back an even higher standard of living without drowning our liberties, the world would see a resurgence of the American spirit so overwhelming that no possible combination of enemies could stand up against it for long.

*Americans like America.* They will fight for America. But too many false prophets have been telling them that when this war is over they won't have America; they'll have something else—an unknown quantity which seems to add up to totalitarianism.

There is plenty of evidence to refute this argument. As a matter of fact, some of the most farsighted men both in government and in industry can give you a host of reasons why the belief in freedom of enterprise is having a regeneration.

### INDUSTRY PROVING VITALITY OF FREEDOM AS DYNAMIC PRINCIPLE

We are proving right now in our factories the vitality of freedom as a dynamic principle. And in so doing, we are laying the foundations for an even greater prosperity and higher standards of living after the war.

Stuart Chase, itinerant economist whose thinking has documented much of the New Deal (he even invented the term, "New Deal") presents the case for post-war optimism in his new book, "The Road We Are Traveling: 1914-1942," published recently by the Twentieth Century Fund. One may disagree with some of his interpretations, but his facts and figures are well worth study.

The facts upon which one can predicate a post-war rebirth of dynamic

business enterprises are there for all who will give them heed. And the appreciation of freedom, the will to work together, will during this war supplant the fighting, snarling, selfish-interest pressure blocs into which the nation was forming before Pearl Harbor.

But is this story being told? No, it isn't. Business leaders are too busy with war production problems to let their voices be heard. And government leaders, judging from the utterances of those now giving tongue, are off on the wrong psychological slant.

Misguided individuals who presume to speak for labor and agriculture, dissident elements and crackpots, and outright Communists and Fascists are not so modest. They are spreading the gospel of defeatism far and wide. Result: unsatisfactory public morale, and "apathy."

If we don't reverse our field, and convince the people that we are fighting for something grand and glorious, we not only can lose this war, but we will certainly lose the peace.

### OUR FIFTH FREEDOM—

#### FREEDOM OF ENTERPRISE

Properly directed, America can be reawakened to a sense of the great value of our Fifth Freedom (the one Roosevelt didn't mention)—our Freedom of Enterprise. Properly led and publicized, America can be shown that current technological development can be the salvation of our post-war economy.

We can build, after this war, a future more brilliant and magnificent than anything the world has ever known before. But we can't if the public is sold the bitter philosophy of defeatism. It's up to the men who know to tell the people what the score is.

### 'NEWS READ WITH INTEREST'

Air Con Service, Inc.  
127 Federal St.  
Boston, Mass.

Editor:

Each issue of the NEWS is anxiously awaited and read with interest by every man in our company. Keep up your fine work. The refrigeration industry would be lost without you.

W. D. PAULIN,  
Manager, Boston Branch

Cook Furniture Co.  
Guthrie, Ky.

Sirs:

I had decided not to renew this but I don't see how in hell I can afford not to do so, so send it on.

H. E. WEBB, JR.

## They Lead the N.R.S.J.A. This Year



A. H. HOLCOMBE, JR.

Mr. Holcombe, of Victor Sales & Supply Co., Philadelphia, is the newly elected president of the National Refrigeration Supply Jobbers Association.



C. W. DENNIS

tion. Mr. Dennis of Dennis Refrigeration Supply, Sioux City, Iowa, is the new vice president of the jobber organization.

operations, outlined in section IV of the book and performed for the most part by the students. Theory and practice are thus forcibly united at the end of the course.

If an effort has been made to simplify the task for the student, it is no less true that the instructor's job has been made as easy as possible, an important factor today when trained service men already find themselves overtaxed and have little appetite for turning themselves into school teachers.

### M-H Sets Conditions For Reconditioning Of Cooling Controls

MINNEAPOLIS — Refrigeration division of Minneapolis-Honeywell Regulator Co. has established a series of list prices for reconditioning, at the factory, many of the models in its line of refrigeration controls.

The "conditions" under which the reconditioning will be done at the list prices are interesting in that they may serve as a guide to the general kind of terms that may be expected in factory reconditioning programs. Some of these terms are:

Prices include transportation from Minneapolis to the customer anywhere in continental U. S. Transportation to the factory must be prepaid, and if not will be charged back to the shipper.

Instruments reconditioned at Minneapolis will carry the standard factory guarantee, and if manufactured within five years will be refinished. Instruments manufactured more than five years ago will not necessarily be refinished.

The list prices apply only to standard devices. Odd scale ranges, capillaries over 20 feet or other than copper or electrical characteristics originally requiring an extra charge when new will not be covered by the list prices. The prices do not apply to alterations, as to voltages, frequencies, etc., differing from the original construction.

The company, in general, will return an instrument identical to the one received for repair. In the event that it cannot ship the same type, it may substitute any instrument performing the same function.

In the event a device is so badly damaged repair is uneconomical the manufacturer will notify the customer and ask disposition. The manufacturer will not be responsible for instruments held more than 60

### Norge Puts Plan For Training Servicemen Into a Manual

DETROIT—Launching an attack against one of the major problems faced today by almost all appliance dealers and distributors, that of training raw recruits for the service department, Norge division, Borg-Warner Corp. has released a 50-page service school instructors manual outlining in detail a complete program for a series of brief but hard-hitting national service schools.

The schools will shortly be under way at Norge distributors' headquarters in every part of the country and in the shops of hundreds of leading Norge dealers, as well.

Realizing the need for an entirely new approach to the service instruction problem because of the great influx of men, and women, whose backgrounds are devoid of training in many of the most elementary physical, chemical, and electrical principles lying behind the science of refrigeration, the manual drops the technical language of pre-war service bulletins and builds the course upon a simple explanation of those basic principles.

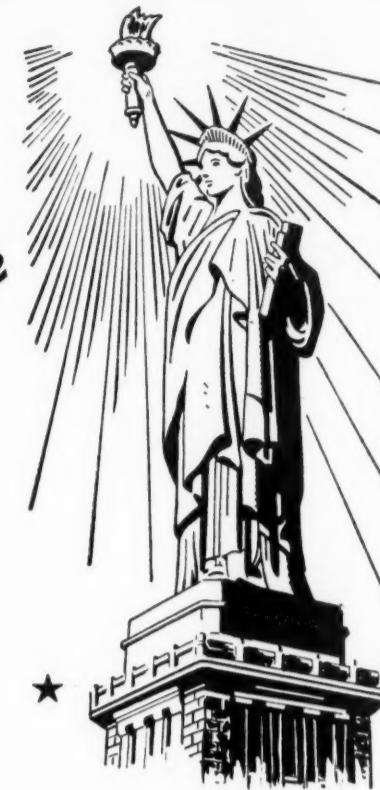
Key to the entire plan of the manual is contained in the "Foreword to Instructor":

"A competent service man must possess a primary knowledge of the fundamental principles which underlie the process of refrigeration. He must be entirely familiar with the construction and operation of the particular mechanism he will be called upon to service. This information, coupled with a degree of mechanical skill, are the necessary requirements of a capable service man."

The manual provides a complete plan and set of instructions for the instructor to cover an intensive school of two days' duration, the maximum amount of time which it is found can be devoted by most service executives to the task of initiating new department employees.

Broken down into four sections, three of which are almost wholly devoted to lectures, blackboard demonstrations and instructors' use of equipment, a comprehensive treatment of theory of refrigeration apparatus in general, and a more detailed description of the Norge systems is given in the first day of the school. The second day is devoted to a practical laboratory exercise in the more common service

*\*\* a wartime message  
to Refrigeration Service  
Engineers \*\**



*... a promise to fulfill . . .*

Your Industry has given an important promise to the War Production Board. . . . A promise of complete cooperation in preventing the misuse and abuse of present Refrigeration Equipment—keeping this equipment operating at peak efficiency "for the duration" WITH A MINIMUM OF REPLACEMENT PARTS!

The reasons for this promise are obvious. Metals and the MAN-POWER necessary to produce them—are VITALLY IMPORTANT in the production of Weapons of War. The more we can conserve of both Metals and Man-power, even in essential Refrigeration, the greater OUR contribution to ultimate Victory.

That's a job to challenge the best of us! A big job to be done, and a promise

to be fulfilled . . . IN THE CAUSE OF WORLD FREEDOM! We CAN'T fail in this, our Industry's biggest Wartime responsibility.

So, today, more than ever before, the Refrigeration Industry depends on YOU—Refrigeration Service Engineers! The Nation is looking to YOUR skill and ability to keep present Refrigeration Equipment in tip-top shape for Wartime Food Preservation . . . Looking to YOUR judgment in the purchase of replacement parts ONLY AS ABSOLUTELY NEEDED.

This is part of your Industry's Victory effort, and we know you will cooperate in its successful accomplishment with all your knowledge and enthusiasm. It's "Home front" strategy that will help win this war for us.

AUTOMATIC PRODUCTS COMPANY  
2450 NORTH THIRTY-SECOND STREET  
MILWAUKEE, WISCONSIN  
Export Dept. 100 Varick St., New York City

**DEPENDABLE**  
*Refrigerant Valves*

days awaiting disposition.

If it is necessary to replace an instrument while in service, the manufacturer on receipt of the proper descriptive data will immediately ship a reconditioned device, billing it at the price of a new instrument. When the manufacturer receives the defective device a credit in full is issued to offset the billing, and the customer is debited for the reconditioning charge.

Branch exchanges may be made only where branches have a stock of reconditioned controls.

#### RECONDITIONED LIST PRICES OF M-H Refrigeration Controls (Not subject to excise tax)

T10B	\$ 2.50	L742B, D & F	\$ 9.50
T44C	2.50	P740A, C & E	7.75
T420	3.50	P740B, D & F	6.25
T491	3.50	P742A, C & E	10.25
T691	3.50	P742B, D & F	9.25
L426	5.50	L413	5.75
L427	7.50	L414	5.00
L480	3.75	L414	5.00
L481	5.50	P400	4.00
T413	8.50	P401	5.50
T414	6.50	P402	4.00
T614	6.50	P420	3.75
L740A, C & E	8.50	P421	5.50
L740B, D & F	7.00	P422	3.50
L742A, C & E	10.75	W55	2.00

### Electrical Heating Equipment Speeds Refrigerator Reconditioning Work

BALTIMORE — Reliable Service Co. here, household refrigeration service firm, has increased shop rate of home refrigerator reconditioning by 35% with the addition of new electrically heated equipment for removing old lacquer and enamel and for vaporizing moisture from refrigerating coils.

All refrigerator cabinets are now immersed in a closed tank with a tempered solution of caustic soda kept between 200 and 212° F. by two immersion-type electric heaters at the bottom of the tank. Refrigeration units are removed as soon as the boxes reach the shop (they come from both dealers and owners) and the cabinets go immediately into the tank for quick stripping off of old paint and enamel.

Both heaters are used to bring the temperature up to more than 200°,

after which one switches off automatically, leaving the single unit to hold the caustic soda solution at the correct temperature.

Another improvement is an oven in which refrigerator coils are baked to remove any trace of moisture which might otherwise combine with newly added refrigerant and form an acid which eats holes in the coils.

It is heated to 230° F. by two electric miniature heaters totaling seven kilowatts. At this temperature, moisture vaporizes swiftly, and is drawn out by a small vacuum pump mounted atop the oven. Only a fraction of the time formerly required to let the coils dry out in the open air is needed with the oven, and the shop mechanics need not keep a close watch over the oven since a hygrometer notifies them when the coils being baked are completely dry.

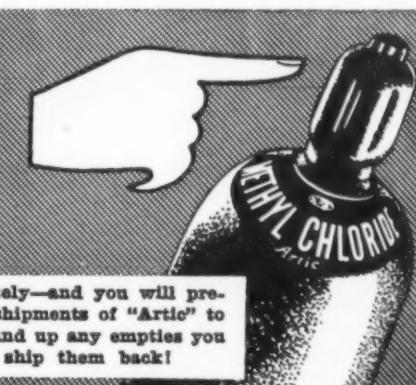
**DUPONT**  
**Artic**  
REF. U. S. PAT. OFF.

For information about nearest source of supply, write to  
ELECTROCHEMICALS DEPARTMENT  
E. I. DU PONT DE NEMOURS & CO. (INC.)  
Wilmington, Delaware  
Or National Ammonia Division  
Frankford P. O. Philadelphia, Pa.

**TO ASSURE QUICKER DELIVERIES  
RETURN EMPTY CYLINDERS PROMPTLY!**

There is a shortage of cylinders for refrigerants. If you will return your "Artic" Methyl Chloride containers as soon as empty, your deposits will be

repaid immediately—and you will prevent delays in shipments of "Artic" to your shop! Round up any empties you have now and ship them back!



## A Call For 'Planned' Merchandise and Service Establishments In New Industrial Areas When Industry Leaders Met At Chicago Meeting

**Editor's Note:** Reuben E. Ottenheimer of The Reol Co., Baltimore, is well known to refrigeration men as a designer, engineer, and merchandiser. His idea for "planned" merchandise and service facilities for new Wartime industrial areas has received an approving nod from several government agencies. Because food preserving establishments are a central part of the plan, the NEWS presents it for the consideration of its readers.

By Reuben E. Ottenheimer

WPB experts, industrialists and plant personnel managers have long bemoaned the fact that no sooner do they get a man trained, familiarize him with the routines of his work, then he's off to Oshkosh, or Podunk, for another war job.

The experts have a right to complain . . . for not only is it necessary to train a new man to take his place, but he in turn must be trained all over again when he reports for his new work. Since inactivities on the part of the powers-that-be are in some ways responsible for this general situation, if they have the right to complain, then they have a right to do something about it, too. Immediate action is desirable . . . immediate action based on a logical analysis of the situation as it stands today.

Let's look into the thoughts that develop in the minds of these workers and lead to their migration.

Is the incentive of a few cents more per hour enough to induce the change? Chances are, the answer is "No." The average worker would not pack up his belongings, his family, his furniture and trek miles and miles to a new job for a comparatively modest increase in salary alone. But he will, and does, make the move when conditions under which he and his family are forced to live tend to make them dissatisfied.

Long before most of us realized what the requirements of our War Production Board program would be, the federal government foresaw the situation and launched a nation-wide program to provide adequate housing facilities for the influx of workers to areas of war industry expansion . . . including naval shipyards, munitions plants, aircraft factories and auxiliary enterprises. They recognized the inadvisability of allowing "three-beds-in-a-room" and "three-shifts-in-a-bed" conditions to continue. Communities comprising hundreds of home units were planned and are now being developed near plants and yards engaged in vital production. That's fine . . . as far as it goes.

### What Makes a 'Home'

But it's just as true today, in wartime, as it was hundreds of years ago . . . that four walls and a roof alone do not comprise a home . . . but only a house.

Workers and their families are just as American, just as patriotic and just as anxious to have this war over and done with as the rest of us. And they're anxious to do their part. But they do, and justifiably

so, look for some semblance of livability in their surroundings.

What does it matter to a welder that he lives within walking distance of his job, if his wife must travel a matter of miles to find stores that can care for even daily family needs?

How important do you suppose it is to the mold-loftsmen that he can save his tires and help eliminate traffic congestion by simply rolling out of bed and dashing across the street to the shipyard, when he knows that a trip to the grocery store is a two-hour daily routine for his wife?

The corner drugstore should not be two miles away. Medical facilities should be close at hand. Clothing stores, fruit and produce markets, barber shops, tailoring establishments, beauty parlors, etc. should be readily accessible to war production workers and their families.

### Problem of Food

A typical example of these needs would be foodstuffs. Transportation facilities to industrial plants in both rural and urban communities are glutted daily with thousands of pounds and gallons of vital materials . . . both going in and coming out. Yet it is also necessary to service the new homes in these areas daily with perishable foodstuffs . . . merely because of a lack of adequate storage space in or immediately adjacent to the areas. Thus: additional burdens dumped in the laps of already over-taxed rail and trucking lines.

In many communities it would be practical to establish cold storage warehouses or locker plants where meat and produce from nearby farms can be processed "on the spot" and stored until needed. The elimination of complicated reshaping . . . the saving in cost and time of handling from producer to packer to jobber to retailer could be materially reduced. And the foods needed would thus be available within easy reach of Mrs. War-Production Worker.

The instance above outlined is only one phase of the merchandise and service facilities problem. Its solution, along with the solution of related problems, lies in the establishment of a federal department set-up to recommend and administer plans for the logical development of commercial enterprises either within or immediately adjacent to new war-production residential areas. Yet to date, no such department has been set up.

Sure, this is war . . . and granted no one has the right to expect the kind of plush velvet existence to which the majority of us have long been accustomed. But today's war is fought just as potently from the production line as from the battlefield. And if the necessary convenience of reasonably close shopping facilities will help to encourage workers to remain at their present war jobs . . . to concentrate their every effort on immediate and swift production . . . then providing those facilities as well as housing needs should be a prime feature in our federal government's war effort.

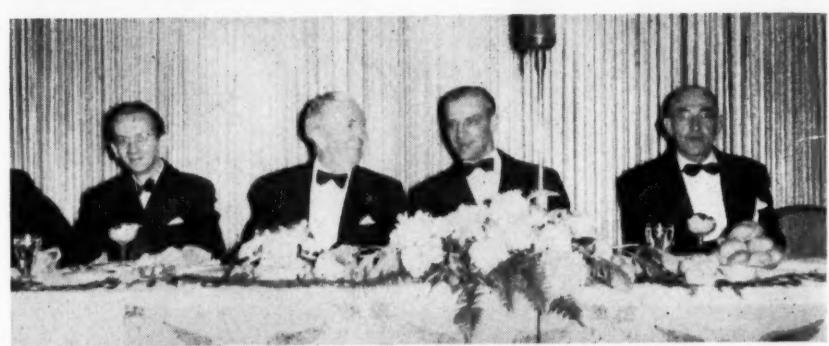
### Post-War Confusion

But even that is not the only reason for providing such facilities. Consider for a moment what kind of picture this country will present the minute war is over.

Here is Joe, former shoe salesman now working at the Navy yard, or on an airplane production line. As a shoe salesman, his life was orderly, well-organized. He had certain conveniences . . . his wife and family were content with their surroundings. When war is over will he stay at his job, and by so doing help the expected population shift to be a gradual one? Or will he immediately make tracks for anywhere . . . just to get away from conditions under which he long felt it is undesirable to live?

Picture, if you can, the resultant turmoil and confusion of five million Joes and their families dashing harem-scram back and forth across the country and you'll realize how important it is that proper preventive measures be instituted today to stave off such a circumstance.

We know that thousands of workers will be retained in war industries to operate the plants even in peacetime. We know that more



R.E.M.A.; W. C. Allen, vice president Lynch Mfg. Corp., and "one-day" president of R.E.M.A. (Mr. Allen is retiring from the refrigeration industry, and was elected for the one day term in recognition of his efforts in behalf of R.E.M.A. Mr. Allen also served as toastmaster at the banquet).

unjustified. In many instances, even if private business wants to provide shopping facilities, stores are not available nor is properly located land on which to build them. Since the federal government is acquiring through purchase or lease all the land on which war-housing developments are being built, the federal government is obligated to make provision for such facilities to serve the people who are expected to occupy the houses.

In many instances, private firms are hesitant to consider the invest-  
(Concluded on Page 11, Column 1)

**SQUARE D IN  
REFRIGERATION**

DO IT ALL WITH SQUARED D

SWITCH PROTECT REGULATE

**SQUARE D COMPANY**  
REGULATOR DIVISION - DETROIT

**The Machine For Your Next Job...**

If it's a refrigeration job . . . no matter how big or how small . . . we can supply Lipman equipment to fit the specifications. Let us work with you.

**GENERAL REFRIGERATION DIVISION**  
Yates-American Machine Co.  
Dept. AC-3, Beloit, Wis.

**Model 153 Water-cooled Machine**

**Superior PRODUCTS ★★★**

★ ★ ★ FOR YOUR Defense Jobs

Increased refrigerated space for the accelerated production of perishable foods places a heavy responsibility upon the refrigeration industry. Shortage of metals condemns waste and inefficiency. Do your part to conserve materials. Design to produce more refrigeration per watt hour. Select equipment which requires a minimum of service. Specify SUPERIOR — the quality buy-word of the industry.

**DIAPHRAGM PACKLESS VALVES**

Entire internal assembly removable for soldering or inspection. Equipped with famous pressure cup below diaphragm. Two and three way. Flare sizes  $\frac{1}{4}$ " to  $\frac{3}{8}$ ". Sweat sizes  $\frac{1}{4}$ " to  $\frac{1}{2}$ ".

**PACKED AND PRESSURE CUP VALVES**

Flare and sweat sizes  $\frac{1}{4}$ " to  $\frac{3}{8}$ " (two and three way) have hex seal cap. Sweat sizes  $\frac{1}{4}$ " to  $\frac{1}{2}$ " (globe) have wing nut seal cap. Internal assembly (all sizes) removable for sweating to valve body.

**CHECK VALVES**

Very sensitive springs. Less than 5 ounces pressure drop. Positively will not chatter or hum. All internal parts easily removable for sweating or inspection. Sizes  $\frac{1}{4}$ " to  $\frac{1}{2}$ ". Flare,  $\frac{1}{4}$ " to  $\frac{1}{2}$ " Sweat.

**LIQUID INDICATORS**

With or without seal cap. Flare sizes  $\frac{1}{4}$ " to  $\frac{3}{8}$ ". Sweat sizes  $\frac{1}{4}$ " to  $\frac{1}{2}$ ". On  $\frac{1}{2}$ " Sweat to  $\frac{1}{2}$ " entire upper assembly may be removed as a unit to facilitate soldering of refrigerant lines to connections.

**DEHYDRATORS**

Silica-Gel or Activated Alumina. Reliable and non-refillable.  $\frac{1}{4}$ " to  $\frac{3}{8}$ ",  $\frac{1}{2}$ " to 5 H.P., 2 to 60 cubic inches.

**MANIFOLDS**

With packless or seal cap valves. Two to six valves;  $\frac{1}{4}$ " to  $\frac{1}{2}$ " valves, with or without end fittings. Sweat or flare.

**FILTERS**

Highly efficient sack type filter. Sizes  $\frac{1}{4}$ " SAE to  $\frac{1}{2}$ " SAE. One to five horsepower.

**FITTINGS**

Unions, adaptors, elbows, tees, crosses, caps, etc.  $\frac{1}{4}$ " through  $\frac{1}{2}$ ".

**HEAT EXCHANGERS**

Unique design gives highest capacity per unit size. Sweat or flare connections. 4200 to 9725 BTU per hour.

**FLARE NUTS**

Combination Heat Exchanger and Accumulator. From one to ten tons. Especially recommended for low temperature installations.

**Don't take chances with the Nation's Health—do the best job possible ★**

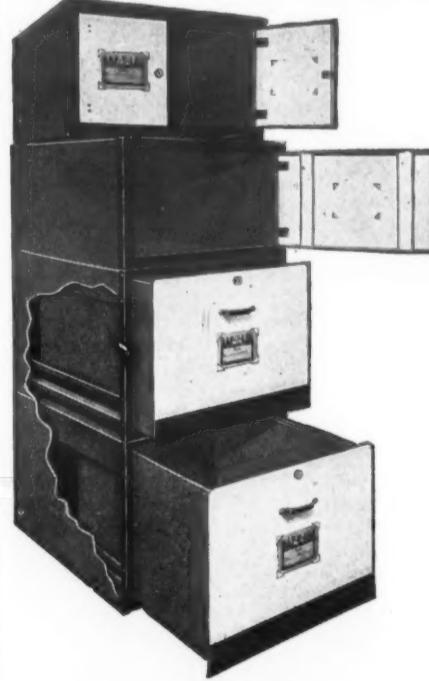
For complete details—see your Jobber or write for catalog

**SUPERIOR VALVE & FITTINGS CO.**  
PITTSBURGH ★ PENNSYLVANIA ★

## Hats Off to MASTER Locker-Equipped Plants

To the food processing and storage plants that contain over 275,000 Master Lockers and Drawers, goes a "salute" for their contribution to the Nation's Victory Program.

These plants, by processing and storing meats, fruits and vegetables at the point of production for local individual consumption, are making available for more urgent use immense numbers of freight cars and trucks—a real contribution to our war program.



## MASTER Leads

In the development of locker construction, Master has set a standard by which all others are judged. If you want full particulars on Master Lockers, write for our folder "The Choice of the Industry."

Endorsed by and sold only through distributors of refrigeration and insulation.

**MASTER REFRIGERATED LOCKER SYSTEMS, Inc.**  
121 Main St.  
Sioux City, Iowa

Over 275,000 Masterbuilt Lockers in Use

## Plan For Federal Department To Recommend Store & Service Facilities For Wartime Areas

*Concluded from Page 10, Column 5)*  
ment in stock and fixtures that a new business operation requires because they have no tangible indication:

1. That they will even be able to obtain the fixtures necessary.

2. That they will be able to obtain the merchandise to sell, what with manufacturers, distributors, and packers so jammed with orders that they are reticent to establish new outlets.

3. Whether or not the potential business, the anticipated life of the community, warrants the investment.

All of this information is available in government agencies today. But it still remains for one government agency to collate it, analyze the facts as found, and be prepared to disseminate the resultant analysis in a controlled planning for commercial development for each community.

Too, with property in war-production areas at a premium, it is unwise to allow a haphazard development of commercial enterprise, even granting that it could find room and would establish itself with no added incentive. Such hit-and-miss growth can easily result in too many of one type of business being established than is necessary to serve the needs of the community . . . thereby keeping other equally necessary types of business away entirely, because, again: no more stores are available for rental and no land available on which to build more.

Another factor to be considered is that the present established merchants in a community may be so located and so set up as to be able to care adequately for the increased population . . . even to an anticipated maximum growth, in such instances it would be unwise to permit an expansion in the commercial phases of the community. Not only would such an expansion require building materials and fixtures (many no longer available for civilian use) and civilian labor sorely needed elsewhere; but, too, it would result in an over-inflation of the area to the extent that, in some cases, a future anticipated shift in population would leave the community serviced by more business establishments than it could logically support.

Obviously, a concrete plan for the coordination of commercial enterprise in war-production areas is essential. A central bureau should be established to study the present and potential commercial needs of such areas and recommend and supervise the installation of adequate facilities.

WORKING PLAN FOR A FEDERAL DEPARTMENT TO RECOMMEND AND SUPER-

VISE THE INSTALLATION OF ADEQUATE MERCHANDISE AND SERVICE FACILITIES IN WAR PRODUCTION AREAS.

SUBMITTED TO FEDERAL AUTHORITIES BY MR. REUBEN E. OTTENHEIMER AT A SERIES OF CONFERENCES STARTING IN NOV., 1941. This department would gather from other government departments and private sources, data on every area in the country in which an expansion or anticipated expansion in war production has resulted or will result in a population growth that cannot be readily absorbed into the community.

Much of this information is already available in departments engaged in providing housing facilities.

After the number of people to live in each area had been established, they would be classified as to income, former status, group habits, etc. . . . leading to a determination of their potential purchasing power as a group; and what their retail requirements would be.

### What Data Should Show

By such analysis it is possible to determine what service businesses and what merchandise businesses should be established to provide for community needs. It is possible to determine exactly how many of each kind of business should be established, taking into consideration the number of types and capacity of such businesses as may already be in operation.

With this information available, it is possible to determine exactly how much land should be made available for retail stores in each community, where it should be located considering the industrial and neighborhood needs, and set up a zoning plan for each community.

A comprehensive preliminary report of each area would specify:

1. The number and kind of businesses to be provided for.
2. How much space each would require.
3. Where each store should be located to serve the community most advantageously.
4. What fixtures each store would require.
5. What accessory machines each store would require.
6. What financial resources each merchant would require to insure the successful operation of his enterprise.

7. Whether facts and anticipated conditions indicate the stores should be set up on a permanent basis, or whether temporary operations should be established.

Provision would be made for the Housing Authority in charge of each community to construct a suitable number and type of stores to service the community. These stores would be leased to private firms and responsible individuals who would undertake to operate the businesses required . . . selling merchandise and services to fill the needs of the community at prices proportionate to the income of the residents.

Provision would be made for the allotment of priority ratings on the equipment and inventories required.

Through information available as to the anticipated contraction and expansion of the population in each area and the approximate times of such changes, concrete recommendations could be made regarding maximum inventories each merchandise store should carry, maximum and minimum labor each service store would require. Inventories could be stabilized, product substitutes recommended, materials allotted where and when necessary through coordination with the War Production Board.



L. H. GILMER COMPANY  
TACONY, PHILADELPHIA, PA.

## Capital's Electric Institute Training Radio and Washer Servicemen

WASHINGTON, D. C.—The Electric Institute of Washington here is rising to meet the urgent needs of the radio industry for more well-trained servicemen and of the laundry equipment servicing and repair dealers for a program of consumer education, reports J. S. Bartlett, managing director.

"Radio service is rapidly increasing to the point that many dealers will soon be swamped, but with an added man such as can be supplied through the institute's program of training young men the dealer will be able to handle a greater volume at a profit," Mr. Bartlett pointed out.

In conjunction with the Chamberlain Vocational school, the institute is planning an intensive six-months' radio repair course to give the student fundamental instruction in servicing and repairing radio receiving sets and to enable him to secure a position as a radio serviceman. The dealer's fee for participating in this program will be the additional institute dues of \$30 per man trained, which is matched by the Power Co.'s dues in 1 to 3 ratio.

After attending school in the morning, students will be required to work in the afternoons and on Saturdays in a dealer's store under the supervision of an experienced repair man. For the first eight weeks the apprentice will receive an hourly wage of 35 cents or a minimum of \$14 a week, 40 cents or \$16 for the second eight weeks, and 45 cents or \$18 for the last eight weeks.

In addition, the institute pays him \$3 weekly for the first period and \$1.50 for the second. The student's earnings will depend on the hours he is able to spend in the dealer's store, Mr. Bartlett stated. The first few weeks he may be only able to become acquainted with the stock, removing the set from the cabinet, cleaning, and such simple tasks.

Later, the Institute Director added, he can repair the bulk of radio troubles which are of a minor nature, and, as he develops under the direction of an expert repair man, he will be able to handle the difficult jobs.

Apprentices are expected to continue in the service of their sponsoring dealer for at least one year after the training period. At the end of the 24-week training period the dealer must pay his new serviceman not less than \$25 a week and more if he is worth it.

In addition, the board of directors has stamped approval on a program aimed at a bone of contention among dealers in the laundry equipment servicing and repair business. It is an educational activity pointed at the users of laundry equipment with the intent of creating the realization that washing machines need servicing and attention.

This program will attempt to make the consumer realize the problems of tires, gasoline, shortage of servicemen, delays in obtaining material, and adequate charges to cover costs that confront dealers.

"We feel sure that this type of

program will enable dealers to replace their sales of new appliances with a volume of repair business that will help them to weather the emergency period," stated E. E. Samson, assistant managing director of the institute.

Dealers participating in this program will be assessed additional dues of \$25 to be matched by the Power Co. in the usual 3 to 1 ratio, Mr. Samson explained.

The program as outlined below is directed at fulfilling the need for consumer education, as well as to help dealers maintain a profitable business:

1. To furnish the eligible dealer with window decalcomania identifying him as an "electrical service and repair dealer."

2. To supply counter cards or window cards featuring a "washer repair service."

3. To carry over the institute's name a listing of washer repair dealers on a page of the yellow classified pages of the telephone directory.

4. Inserts in Power Co. bills to be sent to 50,000 single family dwellings stressing the need for a periodic service and check-up on washers.

5. Additional copies of this folder will be available to dealers with their own imprint at a reasonable charge and can be used by the dealer in his own mailings.

6. The institute will establish a clearing house for all servicing calls and requests.

7. Arrangements will also be made to have available experienced men from distributor and factory service organizations to expand the knowledge of present servicemen through means of training classes.



Uncle Sam has asked Dry-Zero Corporation to conserve its substantial supplies of Ceiba Fibre (Java Kapok, nature's superior insulating material out of which Dry-Zero Insulation is processed)

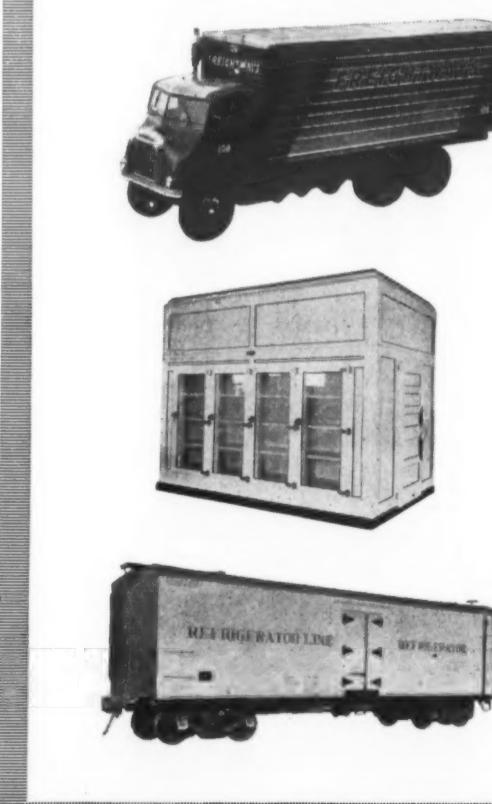
### for use now in U. S. Bombers and Life Saving Equipment

instead of industrial insulation. For the duration, therefore, Dry-Zero Insulation can be used only for commercial refrigeration in the few cases where it is literally imperative for war needs.

It is significant that the same reason that makes Dry-Zero Insulation vitally superior insulation for refrigeration is the very reason it is superior for these important war services . . . ITS UNAPPROACHED RESISTANCE TO GETTING WET.

For this reason Dry-Zero Insulation steadily continues to give incomparable and undiminishing heat-stopping efficiency year after year in refrigerated bodies such as illustrated here.

During the past 18 years in which we have been supplying the Nation with the most efficient commercial insulant known, we have made many friends. While it is painful to contemplate a temporary cessation of business dealings which have resulted in such friendly relationship, Dry-Zero Corporation heartily answers Yes... to Uncle Sam. And when Victory is won we shall be back to serve again with renewed vigor. Dry-Zero Corp., 222 N. Bank Drive, Chicago; also 60 E. 42nd St., New York.



**DRY-ZERO**  
**INSULATION**

## Appointments & Promotions

**McGovern In New Position at Du Pont; Cooper Takes Over on Refrigerants**



E. W. McGOVERN



NELSON C. COOPER

WILMINGTON, Del.—E. W. McGovern of the Chlorine Products division of the Electrochemicals (formerly R & H) Department, of E. I. du Pont de Nemours & Co., has been named manager of the Solvents division of Electrochemicals, it has been announced recently.

Nelson C. Cooper has been transferred from the Solvents division to the Chlorine Products division and will handle much of the work Mr. McGovern did in the refrigerants field.



M. Marean, formerly manager of the Solvents division, has been appointed assistant to the director of sales of the Electrochemicals Department.

Mr. McGovern is widely known in the refrigeration industry as an author and lecturer on the subject of refrigerants and problems pertaining to refrigerants. He initiated several research studies in refrigerants which formed the subject matter of his papers and talks.

He joined the Roessler and Hasslacher Co. in 1929, this company being merged with Du Pont in 1930. He had experience in research, development and production before he was made technical representative for refrigerants, chlorine, and chlorinated hydrocarbons in 1934.

Mr. Cooper has worked on the development of synthetic dry cleaning fluids since he joined Du Pont.

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Mr. Cooper has worked on the development of synthetic dry cleaning fluids since he joined Du Pont.

## Formula Is Provided For Figuring Costs On Gov't Contracts

WASHINGTON, D. C.—A handbook which explains principles for determining costs under Government contracts has just been prepared by the Accounting Advisory Branch of the War Production Board.

For some time costs under government contracts have been based on a decision of the Treasury originally issued to carry out the profit limitation provisions of the former Vinson-Trammell Act. This decision is known as TD 5000 and has been regarded by Government departments as the most satisfactory existing definition of costs. The booklet just issued is not a revision or an interpretation of TD 5000 but explains in simple and complete terms the principles of costs as covered by TD 5000.

Copies can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 10 cents each.

### H. G. Klugman Dead; Had Carried on His Job From Sickbed

CINCINNATI—H. G. (Red) Klugman, who, although bedridden for almost two years, continued his activities as salesman for Williams & Co., Inc., refrigeration parts and supplies jobber here, died on May 8.

Tuberculosis of the spine kept Mr. Klugman flat on his back in a plaster cast since Sept. 1, 1940. By means of a telephone at his bedside in his Oakley subdivision home, he kept in touch with his customers.

He had been with the Cincinnati office of the refrigeration supplies department since its inception in 1933. His wife, Ann, survives him.

### Frank McIntosh Heads Radio Section of WPB

WASHINGTON, D. C.—Frank H. McIntosh of Toledo has been appointed chief of the Radio Section of the Communications Branch.

Mr. McIntosh formerly was Technical Supervisor of the Fort Industry Co., of Toledo, which owns and operates several radio stations. He previously was with the Graybar Electric Co. as Pacific Coast Communication sales engineer, and prior to that was a member of the technical staff of the Bell Telephone Laboratory.

In addition to handling problems in the commercial radio field, the Communications Branch now is charged with the responsibility for problems arising in the domestic radio industry, formerly handled by WPB's Consumers Durable Goods Branch.

**DOLE**  
VACUUM PLATE  
COOLING & FREEZING UNITS  
CHICAGO

Your most important "Tool" when fixing a Leaky System!

### PULMOSAN 1600 FUMEGARD

The first "tool" your servicemen need when entering a gas-filled room, is a reliable face mask. Send them out safely on emergency calls, with the Pulmosan No. 1600 Fumegard. Designed on latest gas mask principles, it is compact, comfortable, efficient, low in cost and durable in service. Protects against Sulfur Dioxide, Methyl Chloride, Ammonia and other refrigerants. Has a husky rubber face piece—wide-vision, shatterproof, non-fogging lenses—flutter exhalation valve—5-point suspension—large, replaceable canister of scientific absorbents. Furnished in carrying case.

**Pulmosan Safety Equip. Corp.,**  
Dept. AC, 176 Johnson St., Brooklyn, N. Y.

They Have New Posts At Universal Cooler



T. S. PENDERGAST



A. C. CADWELL



F. C. LOWELL

### Corbett Will Manage Penn Moline Branch

GOSHEN, Ind.—J. E. Corbett has been appointed manager of the Penn Electric Switch Co.'s Moline, Ill., branch.

For the past five years, Mr. Corbett has been a sales engineer for Penn in the New York territory.

Howard C. Shilling, who was in temporary charge of the Moline office on a part-time basis, will now be able again to devote his entire attention to the Chicago territory in conjunction with E. B. Maire, Chicago branch manager.

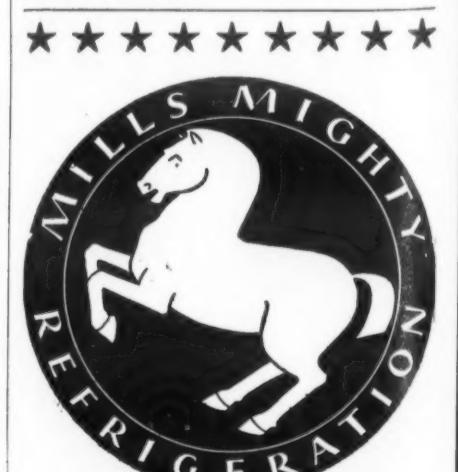
### Minkler Will Direct Young Factory Sales

RACINE, Wis.—Newly named sales manager of Young Radiator Co.'s catalog products division is William A. Minkler, a recent announcement by F. M. Young, president, disclosed. In his new capacity, Mr. Minkler will direct company headquarters sales staff, as well as over 60 representatives throughout the country.

Since 1939 Mr. Minkler has served as assistant sales manager. Prior to joining Young Radiator Co., he was employed in a sales and engineering capacity by Westinghouse Electric & Mfg. Co. He is a graduate of California Institute of Technology.

### Roy Brown To Head Northern Wesco

MILWAUKEE—Roy L. Brown, Indianapolis, has been named manager of the northern district of the Westinghouse Electric Supply Co. with offices in Milwaukee. He succeeds Henry Czech, promoted to manager of the company's northwestern district.



Mills Condensing Units  
By Mills Novelty Company  
4100 Fullerton Ave., Chicago, Ill.

★ ★ ★ ★ ★ ★ ★ ★

**Doing Double Duty**

Refrigeration valves, fittings and accessories will, in all probability, be doing double duty for many months to come. In the meantime, it is of the utmost importance that those products which you can procure are dependable and will function for the "long haul".

If you are in difficulties, write us. We will do our very utmost to help.

Mueller Brass Co. products have a reputation for quality and long life.

**MUELLER**  
BRASS CO.  
PORT HURON, MICH.



WRITE TODAY  
for literature giving full details and price of the Pulmosan No. 1600 FUMEGARD

★ ★ ★ ★ ★ ★ ★ ★

# What to Check When Electric Motor Does Not Start

## Motor Troubles & Their Correction

**Editor's Note:** Following is part of a section on servicing motors, in a series of articles on motor construction and operation.

By R. A. Fuller,  
Industrial Engineering Dept.,  
General Electric Co.

### Complaint - -

#### C. Excessive Brush and Commutator Wear and Sparking (Cont.)

(Note: Causes listed through C-11 apply to all motors equipped with brushes.)

Incorrect Brush Setting (See Section "B 13" for Remedy)

#### 8. Improper Brushes

"Improper brushes," if too hard, may break and chip, may cause an objectionable amount of noise or may cause the commutator to wear too rapidly. If the brushes are too soft they may wear out too rapidly or cause trouble from the accumulation of carbon dust in the slots between the commutator bars. In correcting complaints a hard brush tends to wear longer and cause somewhat more rapid wear of the commutator while a soft brush tends to be quieter and to reduce the rate of wear of the commutator.

#### 9. Moisture on Commutator

"Moisture on commutator" has a detrimental effect on the polish on the surface of the commutator as covered in the section on "Corrosive Atmosphere" but to a somewhat lesser degree.

#### 10. Corrosive Atmosphere

"Corrosive Atmosphere" attacks the polish on the surface of the com-

mutator. It is this polish which, in contact with well polished brush surfaces, insures long life of the brushes and commutator. The motor should be protected from such damaging conditions or a motor especially built to withstand them should be used.

#### 11. Too Frequent Starting

"Too frequent starting" leads to commutator roughness. During the starting of a motor the brushes and commutator carry heavy starting current and slight sparking and pitting of the commutator occur. As the motor continues to run the brushes rub the surface of the commutator and gradually restore its high polish. If the motor starts too frequently it may not run long enough to re-establish the polish after each start. This short cycling is usually caused by the refrigeration load conditions or by the use of refrigerating equipment that has capacity far in excess of the requirements.

A study of the load may lead to corrective action such as, for example, the relocation of controls so that they are not affected by frequent door opening. Increasing the differential of the back pressure control, or the replacement of the back pressure control with a temperature control, is sometimes very helpful. If oversize refrigerating equipment has been used the compressor speed can be reduced, the expansion valve can be adjusted to starve the evaporator and the control readjusted to obtain the desired cabinet air temperature.

#### 12. High Voltage

(The following applies only to single phase motors equipped with brushes and not equipped with a centrifugal mechanism.)

"High voltage" should not exceed 10% above the voltage stamped on the motor nameplate. Of all single phase motors the capacitor motor appears to have the greatest ability to withstand excessive voltage without damage. The repulsion induction motor (in which the brushes ride the commutator continuously and the commutator is not short circuited when running) may develop a rough commutator, rapid brush wear and, if the high voltage is carried to

extremes, general roasting out of the windings.

In general, on motors equipped with commutators, freedom from sparking at the brushes is a sign of healthy conditions. Three phase motors, in general, are able to withstand excessive voltage, without damage, to a greater extent than other motors. Sparking at the brushes due to high voltage can sometimes be reduced by slight shifting of the brushes, that is, by rotating the brush rigging—refer to Fig. 53.

On one design of repulsion induction motor, for example, this improvement is obtained by shifting the brushes in the direction of rotation of the motor and not exceeding  $\frac{1}{8}$  inch movement of the brush rigging at the outer edge of the whole brush assembly. Such shifting of the brushes should be followed by a check that the starting ability of the motor has not been reduced too much. Other corrective measures are to arrange with the power company to reduce the voltage or the installation of a motor designed for the high voltage.

#### 13. Failure of Brushes to Raise Off and Stay Off Commutator

(The following applies only to brush raising single phase motors.)

"Failure of brushes to raise off and stay off, commutator" may be experienced with brush raising single phase motors. This may be caused by:

Low voltage at motor terminals  
Incorrect voltage or frequency for motor used

Excessive load  
Short circuit in stator winding  
Loose connection  
Worn or sticking brushes  
Weak brush springs  
Incorrect brush setting  
Burnt, or otherwise poor, contacts on the commutator short circuiting device

Wear or sticking of the brush raising mechanism  
Dirty commutator

The majority of these are covered in Section B on "Motor Does Not Start" and Section D on "Motor Does Not Come Up to Full Speed."

#### 14. Reversed Commutating Poles

(The following applies only to direct current motors.)

Fig. 53—Changing Brush Los Angeles Jobber Honors 5 Employees

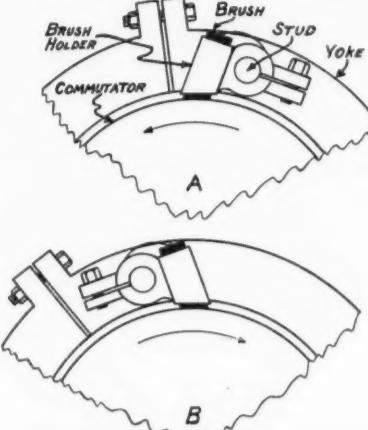


Fig. 53—in reversing a direct current motor which has the brushes set at an angle as shown here, it is necessary to replace the brushes so that they make contact at exactly the same point on the commutator. The armature is blocked and the yoke moved to the new position.

"Reversed commuting poles," on a direct current motor, tend to aggravate the sparking at the brushes. With the field coils energized, if a compass is moved around the motor in the direction of the motor's rotation each commutating pole should have the same polarity as the main pole immediately preceding it.

#### Brass & Copper Catalog Explains WPB Orders

ST. LOUIS—To express its confidence "in the future of refrigeration during this emergency," Brass & Copper Sales Co. here has just issued a 204-page air conditioning and refrigeration supplies and equipment catalog. Included in the catalog are a copy of the new priority regulation P-126 and a summary of the regulation.

#### New Service Firm Opens In Pasadena, Calif.

PASADENA, Calif.—A new refrigeration service firm has been opened here by Victor C. Blanc at 570 North Chester St.

LOS ANGELES — Refrigeration Service, Inc. here honored five employees with longest service records at a dinner attended by the company's 15 employees in a Mexican atmosphere cafe in San Gabriel on May 1.

L. P. Roth, manager, presented watches as awards for 10 or more years of service to: H. A. Halls, assistant manager, 14 years; R. J. Roth, stockroom manager, 12 years; and Frank Rush, shop mechanic, 12 years.

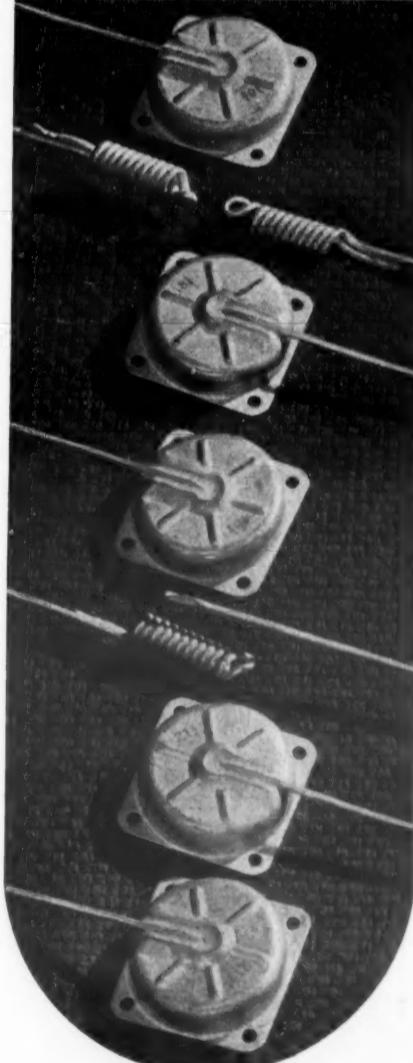
Jan Van Ginhoven, shop foreman, seven years, and Willard Koenig, accountant, five years, each received fountain pen and pencil sets.

**AMINCO OIL SEPARATORS**  
1-3 h. p. to 120 Tons  
**American Injector Company**  
1481 14th Avenue, Detroit, Mich.

**U. S. GOVERNMENT Specification**  
**Filtrine**

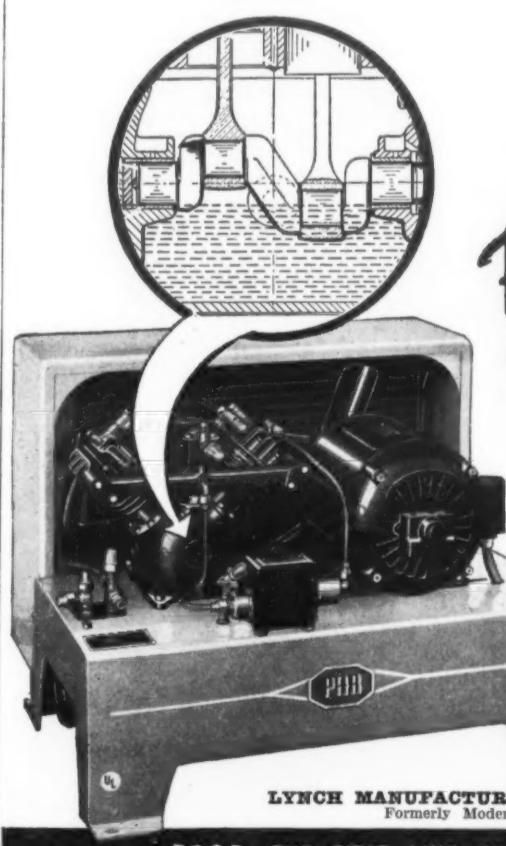
**Cafeteria Coolers**  
Filtrine Mfg. Co., Brooklyn

**Sylphon**  
TRADE MARK  
**Thermostat Assemblies**



## Drop-Forged Crankshafts In All PAR Models!!!

All PAR compressors are equipped with drop-forged steel crankshafts . . . precision machined, case hardened, ground and lapped to a mirror-like bearing surface. Yes, PAR compressors are designed and built with painstaking craftsmanship . . . just like a fine automobile engine.



## PAR Refrigeration Equipment

See your jobber's display of PAR equipment . . . or write the factory for your copy of the FREE PAR CATALOG "R"—a manual for service engineers!

LYNCH MANUFACTURING CORP., Defiance, Ohio  
Formerly Modern Equipment Corp.

FOOD - THE FIRST LINE OF DEFENSE CONSERVE IT WITH REFRIGERATION

A Little Detail of Mighty Importance to Customer Satisfaction

THE FULTON SYLPHON CO.  
KNOXVILLE, TENN.

# PENN Pledges Its Support to the Industry's PROGRAM FOR VICTORY



Because we saw the urgent necessity of the plan, and subscribed wholeheartedly to its objectives, Penn was among the first manufacturers to give active support to the Air Conditioning and Refrigeration Industry's Program for Victory.

Conservation is the key to success. Our existing refrigeration and air conditioning equipment must be kept in service for the duration . . . must be made to function as efficiently and economically as possible.

Penn has prepared a mailing folder entitled, "Enlist for Victory" which manufacturers, distributors and jobbers will find of great value in bringing the conservation program to the attention of dealers and service outlets. The folders are furnished free to those who agree to mail them . . . send now for sample and details. DON'T DELAY . . . immediate action will help to save vital materials for our Victory Program!

Penn Electric Switch Co., Gosben, Indiana.

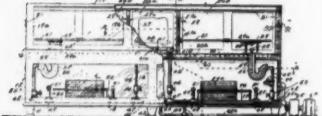


## PATENTS

Weeks of April 21 & 28

(Continued)

**2,281,458. MEAT AND VEGETABLE COOLING DEVICE.** Theophilus Schadegg, Minneapolis, Minn. Application Sept. 22, 1939, Serial No. 296,168. 29 Claims. (Cl. 62—37.)



1. A cooling device having in combination, a cabinet, a chamber in said cabinet having an insulating wall, means in said chamber for cooling the same, a passage through said wall, means for delivering moisture-laden air through said passage, means in said passage having a surface for condensing moisture from said air as it passes into said chamber and an outlet for air from said chamber whereby the air which has been supplied to said chamber can pass therefrom and a circulation of air thus provided to maintain a fresh atmosphere.

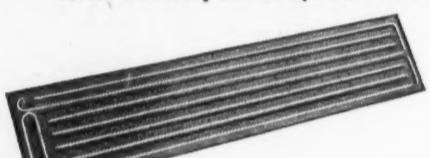
**2,281,615. METHOD AND APPARATUS FOR AIR CONDITIONING.** Gustave Adolphus Peple, Jr., Richmond, Va. Application Aug. 9, 1939, Serial No. 289,136. 8 Claims. (Cl. 98—40.)

## STANDARD PRIME SURFACE Cold Plates

### FOR MAXIMUM EFFICIENT REFRIGERATION

★ FOR Locker Plants, Sharp Freezing, Ice Cream Cabinets, Hardening Rooms, Soda Fountains, Storage Rooms, Milk Coolers, Liquid Cooling, Food Counters and other similar uses.

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## Only POLARTRON Offers truly Independent Adjustment

This exclusive MINNEAPOLIS-HONEYWELL feature enables you to change either the ON or OFF pressure without affecting the other

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MINNEAPOLIS-HONEYWELL REGULATOR COMPANY  
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CANADIAN PLANT: TORONTO, CANADA. LONDON, ENGLAND. COMPANY OWNED BY HONEYWELL



**AMERICAN FOOD PROTECTION**

**DEPENDS ON MECHANICAL REFRIGERATION**

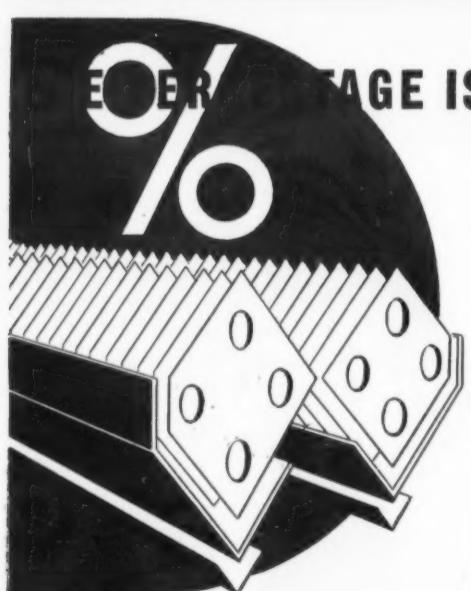
**REFRIGERATION PRODUCTS**

**LARKIN PRODUCTS INCLUDE**

Cross Fin Coils  
Humi-Temp Forced Convection Units  
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Evaporative Condensers

Bare Tube Coils  
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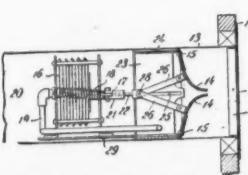
See Your Jobber or Write Direct  
LARKIN COILS, INC.  
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## KOCH METERED MIRAFLEX COILS

Only in Koch cases can you get Metered Miraflex Coils. This patented, exclusive system is sensational and astounding! Sensational, because it automatically maintains constant, correct temperatures and 80% to 90% relative humidity. Astounding, because exhaustive tests show it delivers 10% higher humidity with 20% shorter running time of the condensing unit... 90% more air circulation with 75% less ice formation on the coils. Miraflex is just one of many reasons why distributors sell Koch. Write for complete details and open territories.

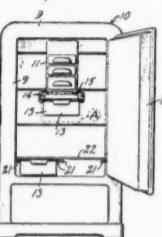
**KOCH REFRIGERATORS**  
NORTH KANSAS CITY, MISSOURI  
You'll make money selling KOCH!



14 Claims. (Cl. 62—4.)

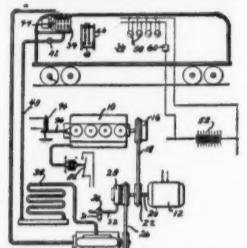
8. In combination, a volatile refrigerant evaporator, a condenser, a compressor, refrigerant flow connections between said evaporator, condenser and compressor, a battery, a dynamoelectric machine for operating said compressor, means for energizing said dynamoelectric machine as a motor from said battery, temperature responsive means for varying the speed of said motor, means for operating said dynamo-electric machine as a generator for charging said battery, and means responsive to the output of said generator controlling the speed of said last named means.

**2,281,690. REFRIGERATOR.** William T. Hedlund, New Rochelle, N. Y., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application June 5, 1940, Serial No. 338,833. 4 Claims. (Cl. 62—89.)



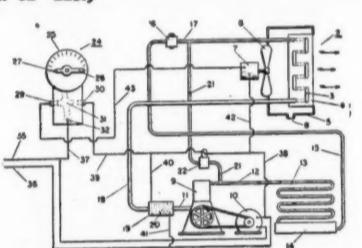
1. The method of conditioning the air within a room or space which comprises supplying treated air from a source of supply to said room in a stream of predetermined direction, maintaining said supply at a constant static pressure, positively varying the volume of treated air in said stream in response to controls located in the room so as to maintain a predetermined atmospheric condition within the room, and maintaining the velocity and direction of the stream of treated air constant and free from eddy currents independently of the volume of air in said stream.

**2,281,626. REFRIGERATING APPARATUS.** Harry F. Smith, Lexington, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application March 31, 1939, Serial No. 265,294.



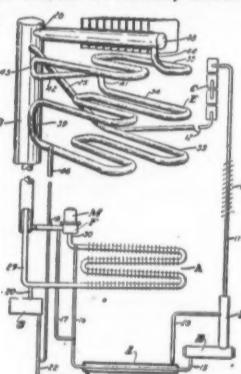
1. In a refrigerator having a food storage compartment and a cooling unit in said compartment, a first container, a second container, said containers comprising pans, the pan forming said second container being shallower than the pan forming said first container and adapted to fit within said first container and having a ledge adapted to seat on said first container that said second container closes the top of and forms a cover for said first container, and supports to hold said pans at selectively different elevations beneath said cooling unit, one of said containers having a projecting part which overlaps the other of said containers to restrict lateral movement between said containers when said second container is placed on said first container to also form a cover therefor in an inverted position.

**2,281,770. DEFROSTING SYSTEM.** Anthony F. Hoessl, Chicago, Ill., assignor to Peerless of America, Inc., Chicago, Ill., a corporation of Illinois. Application Jan. 17, 1941, Serial No. 374,885. 4 Claims. (Cl. 62—115.)



3. In a mechanical refrigerating system having a cooling unit normally discharging refrigerant vapor into a suction line conduit connected to the inlet of a compressor normally discharging compressed vapor into a conduit connecting the compressor with a condenser from which a refrigerant liquid conduit leads to a refrigerant pressure reducing means normally discharging into a refrigerant inlet conduit of the cooling unit, over the exterior surfaces of which an air circulation is maintained by a motor driven fan and upon which exterior surfaces a frost progressively accumulates, the combination of a by-pass conduit connected to said compressor discharge, and ahead of said condenser, and also connected to the refrigerant inlet between the said refrigerant pressure reducing means and the cooling unit, a normally closed solenoid valve in said by-pass conduit, electrical heating means disposed in heat transfer relationship with the refrigerant passing through.

**2,281,823. REFRIGERATION.** Milo E. Bixler and Curtis G. Coons, North Canton,



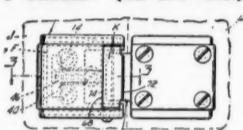
Established 1854  
Curtis Refrigeration  
AIR CONDITIONING  
and COMMERCIAL  
Curtis Refrigerating Machine Division  
of Curtis Manufacturing Company  
1912 Kienlen Ave.  
St. Louis, Mo.



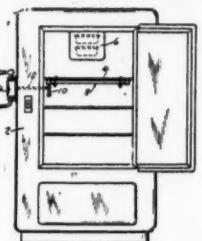
Ohio, assignors to The Hoover Co., North Canton, Ohio, a corporation of Ohio. Application Oct. 10, 1938, Serial No. 234,166. 15 Claims. (Cl. 62—119.5.)

1. Absorption refrigerating apparatus of the type including an evaporator, means for supplying refrigerant liquid to said evaporator, and means for propelling a pressure equalizing medium upwardly through the evaporator under conditions such that the pressure equalizing medium will drag or sweep liquid refrigerant through the evaporator as it travels therethrough, characterized in that said evaporator includes a plurality of sections at different elevations and multistaged lifting conduits interconnecting evaporator sections at adjacent elevations.

**2,281,947. REFRIGERATOR LATCH.** Stuart W. Parsons, New Britain, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut. Application Aug. 1, 1940, Serial No. 349,269. 5 Claims. (Cl. 292—340.)

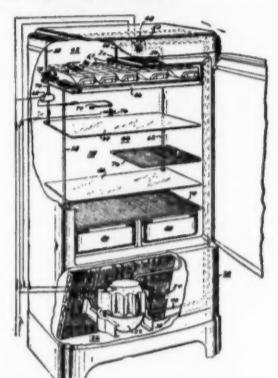


tubes, attaching means extending over the wires of said shelf and projecting downward between the same and between adjacent water conducting tubes of the coil, elements secured to said attaching means and extending transversely of the water conducting tubes beneath the same and



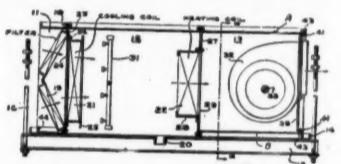
serving to hold said coil closely adjacent the lower surface of the shelf and in heat conducting contact therewith and means for supplying water to and for removing water from said coil.

**2,282,342. REFRIGERATING APPARATUS.** Paul H. Preble, Concordia, Kan., assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Jan. 26, 1940, Serial No. 315,827. 15 Claims. (Cl. 62—116.)



1. A cabinet provided with a storage compartment, a movable partition within said storage compartment dividing said compartment into sub-compartments, a door for closing one of said sub-compartments, said door being provided with extensible means providing a greater door size to accommodate the enlarged sub-compartment when the partition is moved.

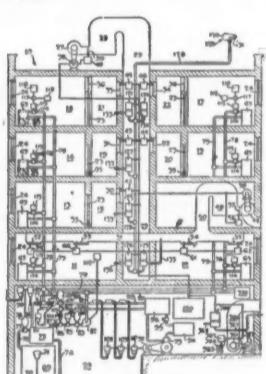
**2,282,373. AIR CONDITIONING APPARATUS.** William A. Minkler, Philadelphia, Pa., and Leroy G. Huggins, Springfield, Mass., assignors to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Dec. 1, 1938, Serial No. 243,484. 8 Claims. (Cl. 257—137.)



1. An air conditioning unit comprising cooling and dehumidifying means for treating the air, blower means in said unit for moving air into said unit in heat transferring relation to part of said cooling and dehumidifying means, said blower means including an outlet adjacent the remainder of said cooling and dehumidifying means whereby at least a part of the output of said blower means traverses said remainder of said cooling and dehumidifying means, and a relatively unobstructed duct communicating with said outlet and extending to a point adjacent the outlet side of said cooling and dehumidifying means whereby a proportion of the output of said blower means is directed into the room adjacent the stream of air issuing from said cooling and dehumidifying means, said duct being arranged beneath said cooling and dehumidifying means and having relatively large width in comparison to its depth whereby to project a horizontal blanket of air beneath the air issuing from said cooling and dehumidifying means and said duct being directed slightly upward whereby to project said blanket of air into the air issuing from said cooling and dehumidifying means.

2.

**2,282,510. AIR CONDITIONING SYSTEM.** Le Roy H. Plum, Collingswood, N. J., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application Jan. 22, 1937, Serial No. 131,772. 7 Claims. (Cl. 98—33.)



1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,871. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,111.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,872. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,112.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,873. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,113.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,874. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,114.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,875. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,115.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,876. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,116.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,877. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,117.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,878. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,118.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,879. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,119.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,880. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,120.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,881. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,121.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,882. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,122.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,883. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,123.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,884. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,124.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,885. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,125.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,886. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,126.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,887. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,127.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,888. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,128.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,889. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,129.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,890. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,130.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,891. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,131.

1. In a draft about a tap, a material and conductive particles entering the and better

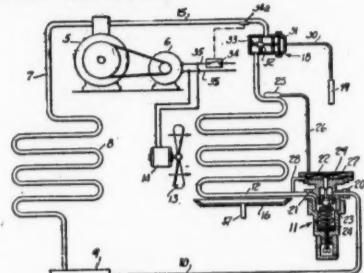
**2,282,892. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,132.

1. In a draft about a tap, a material and conductive particles entering the and better

**2,282,893. CHILLING UNIT.** St. Louis, Mo. Serial No. 321,133.

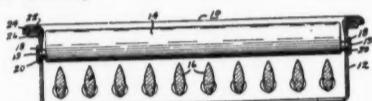
## Patents (Cont.)

**2,282,385. REFRIGERATION CON-**  
TROL. Sam F. Shawhan, Syracuse, N. Y.,  
assignor to Carrier Corp., Syracuse, N. Y.,  
a corporation of Delaware. Application  
July 14, 1939, Serial No. 284,433. 15  
Claims. (Cl. 62—3)



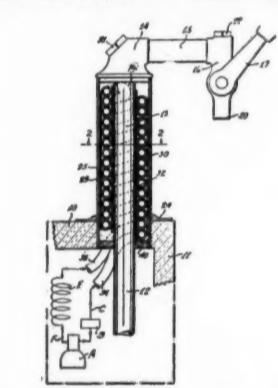
1. The method of regulating the action of the evaporator of a compression type refrigerating system which comprises supplying refrigerant to the evaporator for evaporation therein, withdrawing evaporated refrigerant from the evaporator, regulating the withdrawal of refrigerant from the evaporator in such manner that the temperature therein is caused to rise to a predetermined point, regulating the admission of refrigerant to the evaporator after the temperature therein has risen to said predetermined maximum point in such manner that the effective area of the evaporator will be varied, the effective area being maintained at said predetermined maximum temperature.

**2,282,572. AIR GRILLE.** Charles D. Graham, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application May 31, 1939, Serial No. 276,561. 7 Claims. (Cl. 98—40)



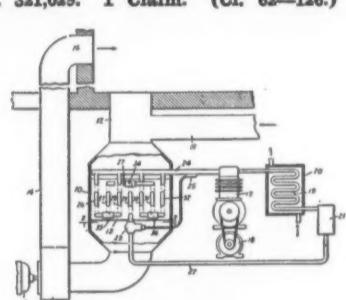
4. An air grille adapted to be mounted within an outlet opening through which refrigerated air is adapted to be discharged comprising in combination, an air grille frame, a coating of resilient insulating material bonded to said frame for insulating said frame from the air adjacent the discharge side of said air grille, and air deflecting means supported by said frame for directing the flow of air through said grille.

**2,282,627. DRAFT ASSEMBLY FOR CHILLED BEVERAGES.** Louis Weiss, St. Louis, Mo. Application Jan. 6, 1941, Serial No. 373,251. 10 Claims. (Cl. 62—141.)



1. In a draft tap assembly, a draft tap, a draft tube leading to the tap, a casing about a portion of the draft tube near the tap, a refrigerant tube within the casing adjacent to the draft tube, and a filling material, of a permanently plastic nature and containing a major proportion of particles of a metal of high thermal conductivity, said material substantially filling the space within the casing between and around the draft and cooling tubes, and between said tubes and the wall of the casing.

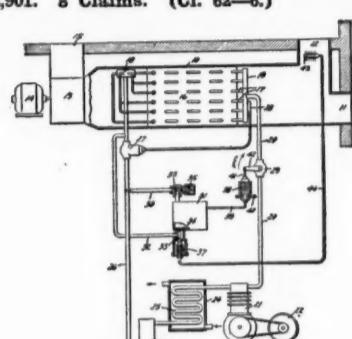
**2,282,879. COOLING UNIT.** Rollin H. Morris, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application Feb. 27, 1940, Serial No. 321,029. 1 Claim. (Cl. 62—126.)



A cooling unit for a refrigerating system comprising an odd number of similar conduits distributed evenly over the path of a medium to be cooled and having straight portions arranged across the path of the medium, an inlet for admitting liquid refrigerant to the middle one of said conduits, a distributor at the outlet end of said middle conduit for supplying substantially equal quantities of the re-

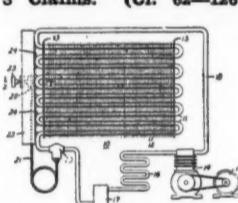
frigerant discharged therefrom to two others of said conduits located symmetrically on either side of said middle conduit, and a distributor at the outlet of each of said two conduits for again dividing the refrigerant equally to two further ones of said conduits arranged symmetrically with respect to the corresponding one of said two conduits whereby each stream of refrigerant before it is divided must pass through conduit in heat exchange with the medium to be cooled and the divided streams of refrigerant are distributed symmetrically across the path of the medium to be cooled, and means for collecting vaporized refrigerant discharged from said further ones of said conduits and for removing the refrigerant from said unit.

**2,282,880. REFRIGERATING SYSTEM.** Charles T. Oergel, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application June 5, 1940, Serial No. 338,901. 8 Claims. (Cl. 62—6.)



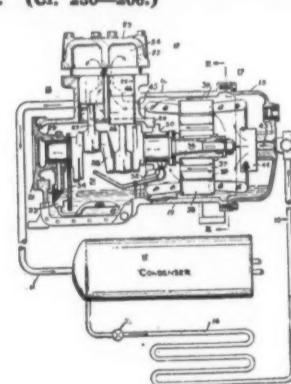
1. An air conditioning system including a refrigerating machine comprising a compressor and condenser and an evaporator, means for circulating air to be cooled over said evaporator and for discharging said air into an enclosure to be conditioned, an expansion valve for controlling the flow of refrigerant from said condenser to said evaporator, means providing a by-pass for the flow of refrigerant around said expansion valve from the high side of said machine to the low side thereof whereby the flow of refrigerant through said by-pass varies in accordance with variations in the pressure drop across said expansion valve, said means having a chamber therein and restricted orifices on the inlet and outlet sides of said chamber for limiting the flow of refrigerant to and from said chamber, means for varying the effective size of the one of said orifices on the outlet side of said chamber, means dependent upon the pressure of the refrigerant in said chamber for controlling the flow of gaseous refrigerant from said evaporator to said compressor, and means dependent upon the temperature of the air in the enclosure to be conditioned for controlling said means for varying the effective size of said outlet orifice directly in accordance with changes in the temperature of the air in the enclosure.

**2,282,970. VARIABLE CAPACITY REFRIGERANT EVAPORATOR.** Ralph E. King, Fort Wayne, Ind., assignor to General Electric Co., a corporation of New York. Application Feb. 1, 1940, Serial No. 316,797. 3 Claims. (Cl. 62—126.)



2. A refrigerant evaporator of the dry type comprising a sinuous conduit having a plurality of end turns and a valve for controlling the admission of refrigerant to said conduit, a temperature responsive element for actuating said valve, a heat conducting guide member secured in heat exchange relation with a plurality of said end turns of said conduit, means including a member slidable along said guide for selectively securing said temperature responsive element in heat exchange relation with any one of said plurality of end turns to establish the length of the portion of said conduit which shall contain liquid refrigerant.

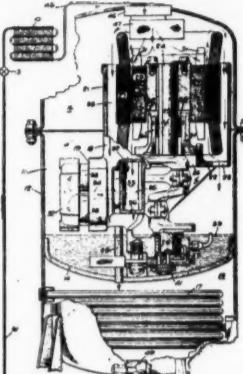
**2,283,024. AIR CONDITIONING APPARATUS.** Edward R. Wolfert, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Dec. 1, 1938, Serial No. 243,410. 1 Claim. (Cl. 230—206.)



An enclosed motor and compressor unit for a refrigerating system comprising a compressor, a motor for driving the compressor, a common fluid-tight casing for the compressor and the motor, said casing including a crankcase for the compressor and a tubular housing for the motor extending horizontally from the crankcase and having an end wall at the end remote from the crankcase, a substantially vertical partition disposed between said crankcase and said motor housing, a shaft extending horizontally through said partition for connecting said motor and compressor, said motor embodying an armature carried by said shaft and a stator secured in said tubular housing of the casing structure, said stator and said rotor being so spaced from the end wall of the motor housing as to provide a refrigerant space of substantial volume to effect separation of lubricant by gravity from the refrigerant vapor, means provided on the portion of said casing forming said refrig-

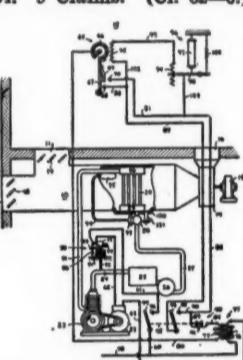
erent space for admitting vaporous refrigerant having lubricant entrained therein to said space, means provided in the lower portion of the casing for conveying lubricant separated from the refrigerant to the crankcase, and passageway means provided in the casing above the oil therein for conveying refrigerant vapor from said refrigerant space axially through the motor to cool the same and thence to the inlet of the compressor.

**2,283,025. REFRIGERATING APPARATUS.** Edward R. Wolfert, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application March 8, 1939, Serial No. 260,513. 6 Claims.



1. A direct-connected, vertical shaft, motor and compressor unit comprising a compressor and a motor for driving the same, the unit being constructed and arranged so that refrigerant vapor to be compressed in the compressor first flows in contact with the working parts of the motor to cool the same, the unit having a bearing disposed adjacent the path of the refrigerant vapor flowing to the compressor in such position that oil spilling from the top of the bearing would spill into said path of refrigerant vapor, means for supplying oil to said bearing, said bearing having an annular recess at the top for collecting oil from the bearing, and the unit having an oil drain passage formed therein extending from said recess to a region outside said stream so as to avoid entraining of said oil in said stream, and means for supplying oil to said bearing other than through said oil drain passage.

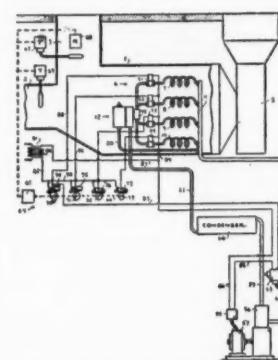
**2,283,065. AIR CONDITIONING.** Alwin B. Newton, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application April 17, 1938, Serial No. 268,234. 9 Claims. (Cl. 62—6.)



9. A method of conditioning air for a space which comprises removing sensible and latent heat by passing unconditioned air at substantially constant velocity over an evaporator of a refrigerating system which is continually supplied during effective periods of operation with refrigerant passing serially through said entire evaporator and at such a rate of flow as to maintain a substantially constant degree of superheat at the outlet of said evaporator, intermittently rendering said evaporator effective and ineffective over a period of time during which said space requires cooling and regulating the total time consumed by said effective periods in accordance with the sensible heat load on said space during said period of time for maintaining the dry bulb temperature in said space substantially constant, increasing the duration of said effective periods upon an increase in space humidity and decreasing the duration of said effective periods upon a decrease in space humidity without affecting the average temperature of the air leaving said evaporator, or the total time consumed by said effective periods, whereby the amount of sensible heat removed from the air by said evaporator over said period of time will be unaffected by the humidity in said space.

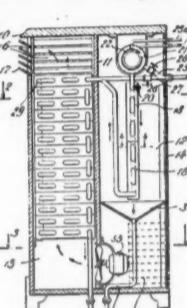
**2,283,386. AIR CONDITIONING SYSTEM.** Alwin B. Newton, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application Jan. 24, 1940, Serial No. 315,365. 4 Claims.

3. In an air conditioning system, in combination, a conditioning chamber through which a stream of air is passed to a conditioned space, a direct expan-



sion cooling device located in said chamber, said cooling device comprising a plurality of separate heat exchange conduits adapted to contain refrigerant and in heat exchange relationship with said air stream, said conduits having inlets and outlets, a source of liquid refrigerant, a single expansion valve connected to receive refrigerant from said source, a distributor receiving low pressure refrigerant from said expansion valve, said distributor comprising a chamber communicating with said expansion valve and with a plurality of restricted passages, individual connections between the outlets of said restricted passages and said heat exchange conduits whereby each restricted passage meters the supply of refrigerant from the expansion valve to a corresponding heat exchange conduit, a separate valve in each of said individual connections, an electromagnet for each of said valves, a separate switch for each of said electromagnets for energizing and deenergizing the same, a movable member for actuating the switches in sequence, a reversible electric motor for positioning said movable member, and means responsive to the cooling load for gradually controlling said reversible electric motor.

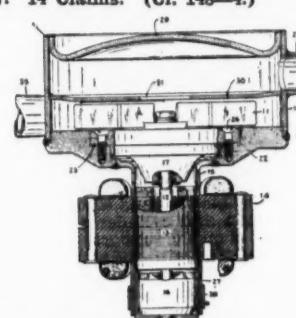
**2,283,391. COOLING AND DEHUMIDIFYING APPARATUS.** George R. Sieffken, New York, N. Y. Application April 11, 1940, Serial No. 329,029. 3 Claims.



1. Apparatus for conditioning the air in a room, which comprises a cabinet, the interior of which is subdivided by a partition into a compartment and a passage, the passage having an inlet and an outlet at opposite ends and the compartment being open to the room, cooling units lying in the compartment and passage, respectively, and connected together, means for supplying a relatively cool medium to the compartment unit to flow therethrough and then through the unit in the passage, and a fan for drawing air from the room and

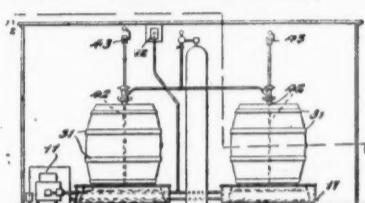
passing it through the passage only, the arrangement being such that air circulating within the room has only convection circulation through the compartment.

**2,283,763. REFRIGERATION.** Ernest C. Boglin, North Canton, Ohio, assignor to The Hoover Co., North Canton, Ohio. Application Jan. 17, 1941, Serial No. 374,897. 14 Claims. (Cl. 148—4.)



1. The method of making a unitary shell for separating the rotor and stator of a dynamo electric machine which comprises treating the end sections of a shell in which the iron is in a ferritic state to change the iron in the end sections into an austenitic state.

**2,283,818. SYSTEM FOR COOLING BEVERAGES.** Albert L. Reiser, Columbus, Ohio. Application Feb. 11, 1941, Serial No. 378,467. 6 Claims. (Cl. 62—141.)



1. A pan-like receptacle having a bottom, means for circulating refrigerating liquids against the under side of said bottom, a body of liquid in the pan adapted to be congealed by heat transfer to said refrigerant liquid; a beer keg, a heat conducting plate set between at least two of the staves and extending a substantial distance within the keg and having a broadened edge portion exposed at the outer face of the head for contact with congealed liquid in said pan-like receptacle.

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KRAMER-TRENTON CO. TRENTON, N.J.

## Refrigerated Storage Under Pressure as Canning Slows Up

(Concluded from Page 1, Column 3)

"Due to the shortage of critical materials, canning is forced greatly curtailed. This will especially affect civilian supplies of canned foods due to the heavy requirements of the armed forces and for overseas shipment. Freezing and storage under refrigeration will conserve a wide range of food products such as eggs and poultry, dairy products, meats and meat products, and fruits, both fresh and frozen."

Mr. Shoemaker pointed out that projected 1942 peak holdings in refrigerated warehouses of the United States are more than 1,700,000,000 lbs. of products requiring zero temperatures, and 1,160,784,000 lbs. of products requiring "cooler" service at 30°.

"The figures shown," Mr. Shoemaker said, "indicate a very heavy occupancy of all refrigerated warehouse space, with possible shortage of space in certain areas. Total space figures for the country as a whole, as for certain areas alone, do not give a true picture of the situation."

"The location of available space in relation to production and subsequent processing or distribution is of great importance. This situation has been and is having our close attention. There are several factors that can change these figures. Weather in its

effect on production, and the uncertainty of shipping overseas will have a marked effect on our surplus accumulation of products in storage."

"A number of state laws coming under the category of 'trade barriers' are administered by your departments. I urge that where any of these regulatory measures in any way impede or interfere with the war effort, prompt action be taken to correct the situation for the duration. There should be the broadest possible freedom in the handling and movement of food products to the end that all demand of every nature be met, without dislocation or delay."

## Batt Says Metals Scarcer; Calls For More Substituting

(Concluded from Page 1, Column 2)

been increased about 5,000,000 tons. Of the projected 10,000-ton increase, now being reviewed some 65 to 70% will probably be completed. At least 70% and possibly more of the pig iron capacity will be completed.

"Steel plants are costly to build, in materials, money, and time. If we could do without any of that program we would do so. Even the curtailed expansion program will cost about a billion and a half dollars, with the industry providing some \$500,000,000 and the government the remainder."

"It now appears that we will exceed our estimates on total output for 1942 and the production may go as high as 85,000,000 tons.

### NICKEL

"In regards to nickel, the officials stated that the government has allocated \$20,000,000 for the production in Cuba from 1% ore and is ample evidence of the need for the metal."

### CHROMIUM

"The government is spending more than \$10,000,000 on chrome development and private industry is contributing about \$1,500,000. Domestic output was a couple of thousand tons a year as against consumption, in 1939, of 320,000 tons. Before the war we imported all but a negligible amount of chromium. This year we will use about three times that amount, or almost as much as world production in 1939." The official pointed out that a development in Montana when at its peak, will supply about 500,000 tons of 40% chromium concentrate a year.

### ALUMINUM

"The initial program of 850,000,000 lbs. annual capacity has been completed."

### COPPER

"War demands are tremendous and the current outlook is for constant and growing shortages of this vital metal. Substitution of steel for brass in shell casings is advisable only in certain cases and the amount of silver that can be substituted for copper as a conductor of electricity is also limited."

"Thus we are faced with a tight copper situation at a time when copper output and imports are setting a record."

"The fact remains that 98½% of present domestic output comes from 15 mines and it takes 270 odd mines to produce the remaining 1½%."

"We expect to have this year about 1,800,000 tons of copper from domestic output and imports. Recovery of scrap should add approximately 300,000 tons to our store. From here out, non-essential civilian users cannot expect to obtain any copper, and only a necessary minimum amount will be available for essential non-military use."



## CLASSIFIED ADVERTISING

### POSITIONS AVAILABLE

ENGINEER experimental and laboratory. Must have technical training and understand laboratory methods. Knowledge of air or refrigeration compressors and other refrigeration equipment desirable. Long established company with ample war work for the present and long range program for the future. Give complete information in first reply. Our Engineering Department has been notified of this advertisement. Box 1398, Air Conditioning & Refrigeration News.

### EQUIPMENT WANTED

COMPLETE FROZEN food locker plant. Will pay cash. Plant to be dismantled and moved to new territory. Refrigeration equipment must be under four years old in good condition. Don't answer unless you will sell at genuine sacrifice—less than half your net cash purchase price. Box 1401, Air Conditioning & Refrigeration News.

### EQUIPMENT FOR SALE

FREEZ-O refrigerant for Frigidaire Meter-Miser units. Perfect replacement for "F114." Send your cylinders to THE STANDARD REFRIGERATION CO., McKees Rocks, Pa., for refill. Price \$1.50 per pound. We also have highest grade Iso-Butane at \$1.00 per pound.

## Carrier Wins Further Navy Commendation

SYRACUSE, N. Y.—For outstanding production achievement Carrier Corp. has been authorized by the Navy Department to fly the Navy "E" pennant, won last year, for another six months' period.

The Navy's new "E" pennant, with one star added for the additional six months of production, was presented to Carrier employees and officials by Lt. Thomas W. Dewart, of the headquarters of the Third Naval District, New York City.

## Carrier Offers New When The Industry Met At Chicago Products To Dealers

(Concluded from Page 1, Column 1) arsenals, and other production facilities as a means of saving communication time.

Dorex utilizes activated carbon on the same principle used in gas masks to purify and reuse the air in buildings, and thus lessen the amount of air that must be drawn in from the outside for purification.

In developing the program, Carrier sought particular types of products for war production whose markets parallel those of Carrier, or with engineering problems demanding the same trained engineering background for selling as does air conditioning.

Actually the plan was pulled out of the air, inspired by necessity, say Carrier officials. No particular yardstick was available for choosing other companies to approach, so a number were chosen almost at random. Two nationally known manufacturers replied immediately that at this time the program was not feasible for them, but suggested that it had important potentialities for the post-war period.

Mr. Murphy said there are three classifications of dealers in all industries:

1. Those who are going out of business regardless in the face of difficulties
2. Those who will stay in business regardless
3. And those who want to stay in, but don't know how. The new plan is designed for the last two.



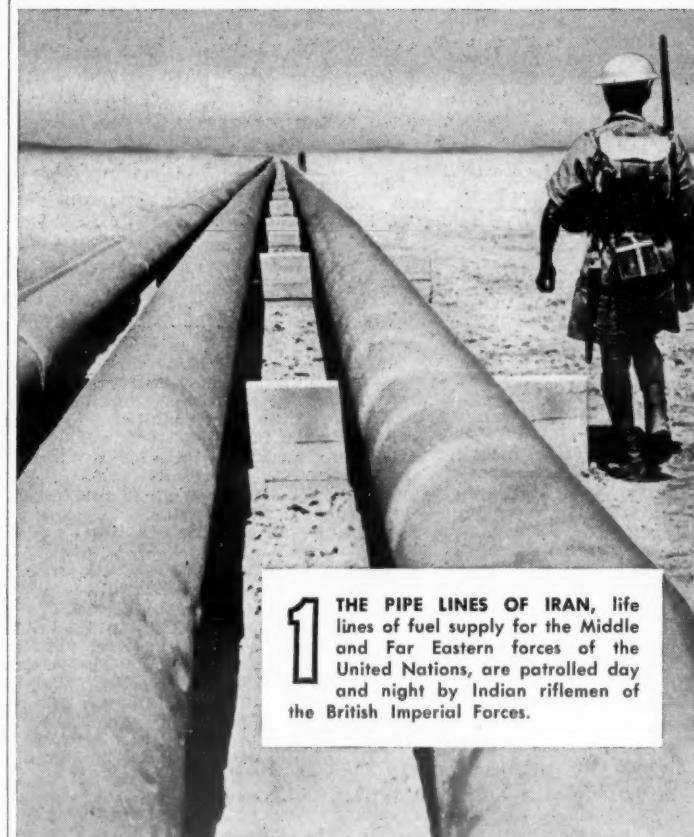
At the speaker's table at the All-Industry Banquet are (left to right) K. B. Thorndike, Detroit Lubricator Co., one of the men who arranged the program for the All-Industry Conference; C. H. Benson, Imperial Brass Mfg. Co., chairman of the meeting; John Wyllie, Jr., Temprite Products

Corp., newly elected president of R.E.M.A.; Frank Smith, Tecumseh Products Corp., president, Standard Refrigeration Compressor Association; Henry Dinegar, Chief, Consumers Durable Goods Section, Office of Civilian Supply.



These brave individuals lined up to take the barrage of questions fired during the "Priorities Clinic" that was a part of the All-Industry Conference at Chicago. Chet Borden, Boston parts jobber and retiring president of the N.R.S.J.A., is at the microphone telling the audience that "There's only one thing I'm sure of, and that is that the wrong man is up here behind this microphone." With him (left to right) are Harry Alter, Chicago parts jobber; H. W. Small, St. Paul parts supplier; W. C. Allen, vice president, Lynch Mfg. Corp.; George Allen, Mueller Brass Corp.; and Harry C. Williams, Air Conditioning and Commercial Refrigeration Branch, WPB.

## FAMOUS LIFE LINES



1 THE PIPE LINES OF IRAN, life lines of fuel supply for the Middle and Far Eastern forces of the United Nations, are patrolled day and night by Indian riflemen of the British Imperial Forces.



2 "LIGHTNING" STREAKS AT WELL OVER 400 M.P.H.! And many of the life lines of U. S. warplanes—primer tubes for engines, control tubes and air-bleeder tubes for propellers, carburetor compensator tubing—are by Bundy.

**S**TRENGTH and light weight — these are the qualities which day by day are turning up dozens of new mechanical and structural applications of Bundy Tubing for war production.

Antennae, spacer and structural tubing for various types of radios; conduit tubing for tanks and trailers; stabilizer tubing for ground flares and shade rib supports for parachute flares; parachute rip cord grips; vent tubes for expeditionary gas cans; structural tubing for military lamps of every type—these are but a few of the hundreds of mechanical applications for Bundy Tubing.

And, of course, as war production grows, so grow the

uses for Bundy Tubing in every type of automotive and refrigeration application for the armed forces. These two industries long ago accepted Bundy Tubing as the standard for strength, for ductility and for resistance to vibration fatigue. Wherever automotive and refrigeration products go in the service of the armed forces of our country, there you will find Bundy Tubing.

If your war contract requires tubing anywhere in Bundy's range of sizes—whether the application is mechanical or for carrying fuel, lubricants or refrigerants—you should have the complete Bundy Tubing. Write Bundy Tubing Company, Detroit, Michigan.

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BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including  $\frac{1}{4}$  O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.

BUNDY ELECTRICWELD steel tubing. Single-walled—butt welded—anecaled. Also furnished tin-coated outside if desired. Available in sizes up to and including  $\frac{1}{2}$  O. D.

BUNDY "TRIPLE-PURPOSE" tubing. Double-walled, rolled strips, joints opposite, welded inside. Available in all Monel, Monel—steel outside, and Monel outside inside. Sizes up to and including